BOROVSKIY, I.B.; PREDVODITOLOV, A.A.; TYAPUNINA, N.A.; ETINA, Ye.V.

Relation between impurity distribution and dislocations in cadmium crystals. Kristallografiia 7 no.4:600-603 Jl-Ag '62. (MIRA 15:11)

1. Moskovskiy gosudarstvennyy universitet, Moskva.
(Dislocations in crystals)

TYAPUNINA, N.A.; SHASKOL'SKAYA, M.P.; CHZHAO-TXZYAN' [Chao-Chien]; VEKILOV, Yu.KH.

Effect of plastic deformation and of radiation on internal friction in LiF monocrystals. Fiz. tver. tela 3 no.12:3637-3644 D '61. (MIRA 14:12)

1. Moskovskiy institut stali.
(Lithium fluoride crystals--Defects)
(Deformations (Mechanics))
(Radiation)

S/032/61/027/001/032/037
B017/B054

AUTHORS: Tyapunina, N. A., Predvoditelev, A. A., and Bystrikov, A.S.

TITLE: Apparatus for Observing and Microfilming the Process of Electrolytic Polishing

PERIODICAL: Zavodskaya laboratoriya, 1961, Vol. 27, No. 1, pp. 112-114

TEXT: Films were shot to study the shape and spatial arrangement of grain boundaries, cracks, inclusions, and dislocations in metals during etching and electrolytic polishing under the microscope. A cuvette for a metallographic microscope was developed for continuous observing and photographing of electrolytic polishing and etching with magnifications of up to 1200. The following Zeiss objectives were found suitable for photographing the etching process: Apochromat 15 X, A 0.30, F = 15.7; Apochromat 40X, A 0.65, F = 6.16, and Apochromat 90X, A 1.00, F = 2.77. The best results were obtained with an immersion lens. For film-shooting, the photographic camera of the microscope was substituted by a movie camera. There are 2 figures and 4 references: 3 Soviet.

Card 1/2

Apparatus for Observing and Microfilming the Process of Electrolytic Polishing

S/032/61/027/001/032/037
B017/B054

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

Card 2/2

SHVIDKOVSKIY, Ye. G.; TYAPUNINA, N. A.; BELOZEROVA, E. P.

Genesis of dislocations in lithium fluoride and sodium chloride crystals caused by vibration. Kristallografiia 7 no.3:473-474 My-Je '62. (MIRA 16:1)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

(Dislocations in crystals)
(Lithium fluoride) (Salt)

S/070/62/007/003/023/026
E132/E460

AUTHORS: Shvidkovskiy, Ye.G., Tyapunina, N.A., Belozerova, E.P.

TITLE: The influence of an electric field on the behaviour of charged dislocations

PERIODICAL: Kristallografiya, v.7, no.3, 1962, 471-472

TEXT: Crystals of LiF and NaCl were etched chemically in an electric field of 0.3 kV/mm and also without a field and the etch pits were compared. The faces of the plates lying parallel to the electric field were examined. In the case of LiF the etch pits were drawn out and similar results were obtained for NaCl. In the latter case, a minimum of 2 kV/cm was found to be necessary to produce an effect. The most likely explanation is that the dislocations move under the influence of the field. There are 2 figures.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova (Moscow State University imeni M.V.Lomonosov)

SUBMITTED: September 17, 1961

Card 1/1

38383
S/070/62/007/003/024/026
E132/E460

34.7500

AUTHORS: Shvidkovskiy, Ye.G., Tyapunina, N.A., Belozerova, E.P.

TITLE: The generation of dislocations during the vibration of crystals of lithium fluoride and sodium chloride

PERIODICAL: Kristallografiya, v.7, no.3, 1962, 473-474

TEXT: Crystals of LiF were oscillated mechanically as a double oscillator (LiF coupled to quartz) for an hour at 100 kc/s. The amplitude was in one case 2×10^{-6} and in a second run 2.7×10^{-4} which correspond to stresses of 0.02 and 2.3 kg/mm^2 respectively; the limit of flow being 0.5 kg/mm^2. The crystals were etched and examined for dislocations before and after treatment. Before oscillation the dislocation density was approximately 10^4 cm^{-2}. In the case of the specimen oscillated below the limit of flow no new dislocations were observed but for the other specimen new dislocations had been generated. Similar results were obtained for crystals of NaCl. These are in agreement with the observations of other authors. There are 2 figures.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im.M.V.Lomonosova (Moscow State University imeni M.V.Lomonosov)

SUBMITTED: September 17, 1961

Card 1/1

SHVIDKOVSKIY, YE. G.; TYAPUNINA, N..A.; PREDVODITELEV, A. A.

"Dislocation Structure and Dislocation Multiplication in Cadmium Crystals"
Paper was submitted at the International Conference on Crystal
Lattice Defects at Kyoto, 7-12 Sep '62

(for Shvidkovskiy, Ye. G.) Inst. of Crystallography, Acad. of Sci., USSR
Leninsky Prospect 59, Moscow, V-333

SHVIDKOVSKIY,YE.G.; ZELOZEROVA, E. P.; TYAPUNINA, N. A.

"Effect of High Frequency Vibrations on Dislocation Structure and Internal Friction In Lithium Fluoride Crystals"
Paper was submitted at the International Conference on Crystal Lattice Defects at Kyoto, 7-12 Sep '62

(for Shvidkovskiy, Ye. G.) Inst. of Crystallography, Acad. of Sci., USSR, Leninsky Prospect 59, Moscow, V-333

KLASSEN-NEKLYUDOVA, M.V.; ORLOV, A.N.; MIUSKOV, V.F.; TYAPUNINA, N.A.; SHASKOL'SKAYA, M.P.

Symposium on dislocations in and mechanical properties of solids, held in Cambridge (England). Kristallografiia 6 no.5:809-812 S-O '61. (MIRA 14:10)

1. Institut kristallografii AN SSSR.
(Dislocations in crystals--Congresses)

S/070/60/005/003/020/024/XX
E132/E460

AUTHORS: Yurasova, V.Ye., Pavlovskaya, E.A., Tyapunina, N.A.

TITLE: The Application of Ionic Etching For Showing Up Dislocations and Predvoditelev, A.A.

PERIODICAL: Kristallografiya, 1960, Vol.5, No.3, pp.437-440

TEXT: Etching is the most widely used method of revealing the emergence of dislocations at a crystals surface and is usually chemical or electrolytic. To show the dislocations successfully it is essential that impurities should be concentrated in them giving a Cottrell atmosphere. The method of producing no superficial studied as it has a wide temperature range. oxidation and of being usable over a wide temperature range. Dislocations are shown up by the selective sputtering of ions from the disturbed plane in the lattice. Cadmium crystals have been used with zinc as impurity. Sputtering was carried out in a glow discharge in air or neon at 10^{-1} to 10^{-2} mm Hg. The best conditions were found to be: current density 20 ma/cm^2, voltage 1500 to 2000, duration 20 min and pressure 10^{-1} mm Hg.

Card 1/2

S/070/60/005/003/020/024/XX
E132/E460

Showing Up Dislocations in

Metallic [illegible] pecimens was carried out for Electrolytic etching or [illegible] The results show a very close correspondence between comparison. A particular dislocation configuration is the two methods. Acknowledgments are expressed to quantitatively analysed. Professors G.V.Spivak and Ye.G.Shvindlerman for their interest in the work and to V.L.Indenbom for useful advice. There are 5 figures and 9 references: 4 Soviet and 5 English.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova (Moscow State Universi im. M.V.Lomonosov)

PRESENTED: September 9, 1959

TYAPUNINA, N.A.; PREDVODITELEV, A.A.; BYSTRIKOV, A.S.

Device for the observation and filming of the process of electrolytic polishing under the microscope. Zav.lab. 27 no.1:112-114 '61. (MIRA 14:3)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Microcinematography)
(Electric polishing)

TYAPUNINA, N. A.; PREDVODITELEV, A. A.; YURASOVA, V. Ye.; GUSAROVA, S. M.; ZAKHAROV, V. M.

Distribution of impurities and dislocations in cadmium crystals. Fiz. met. i metalloved. 14 no.4:582-588 O '62. (MIRA 15:10)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

(Cadmium--Metallography)
(Dislocations in metals)

S/070/63/008/002/005/017
E021/E120

AUTHORS: Belozerova E.P., Tyapunina N.A., and Shvidkovskiy Ye.G.

TITLE: Multiplication of dislocations in alkali-halide crystals under the influence of high frequency vibrations

PERIODICAL: Kristallografiya, v.8, no.2, 1963, 232-237

TEXT: Crystals of lithium fluoride and sodium chloride with yield points of 500 and 200 g/mm^2 respectively were used in the investigation. The initial dislocation densities were $6 \times 10^4/cm^{-2}$ and $2 \times 10^4/cm^{-2}$ respectively. The crystals were subjected to vibrations in a double resonance oscillator with a frequency of 110 kcps. The amplitude was variable up to 3.2×10^{-4}. The change in dislocation structure was followed by repeated etching. Lithium fluoride was etched in a 3% aqueous solution of ferric chloride for 1 minute and sodium chloride etched in glacial acetic acid for 30 seconds. In the case of lithium fluoride, the minimum stress of the vibration leading to the formation of new dislocations was 580 g/mm^2. Further increases in amplitude of vibration caused the appearance of slip bands at about 850 g/mm^2.

With vibrations of amplitude 1000 g/mm^2 the dislocation density increased with time, approaching a saturation value. The time to reach saturation depended on the stress level and at 850 and 2700 g/mm^2 was over an hour and five minutes respectively. In the case of sodium chloride, the minimum stress level to cause the formation of new dislocations was 250 g/mm^2 and slip bands appeared with stresses greater than 480 g/mm^2.
There are 7 figures.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova
(Moscow State University imeni M.V. Lomonosov)

SUBMITTED: July 3, 1962

YURASOVA, V.Ye.; PAVLOVSKAYA, E.A.; TYAPUNINA, N.A.; PREDVODITELEV, A.A.

Use of ionic etching in exposing dislocations in metal crystals.
Kristallografiia 5 no.3:437-440 My-Je '60. (MIRA 13:8)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Metal crystals) (Etching--Technique)

VEKILOV, Yu.; TYAPUNINA, N.A.; SHASKOL'SKAYA, M.P.

Internal friction and dislocation density in LiF following a preliminary plastic deformation.. Kristallografiia 5 no. 6:953-955 N-D '60. (MIRA 13:12)

1. Moskovskiy institut stali i Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Lithium fluoride crystals)

PREDVODITELEV, A.A.; TYAPUNINA, N.A.; BYSTRIKOV, A.S.

Spatial arrangement of dislocations in cadmium. Kristallografiia 5 no.3:432-436 My-Je '60. (MIRA 13:8)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Cadmium crystals)

S/181/61/003/012/012/028
B104/B102

AUTHORS: Tyapunina, N. A., Shaskol'skaya, M. P., Chao-chien, and Vekilov, Yu. Kh.

TITLE: Effect of plastic deformation and irradiation on the internal friction of LiF single crystals

PERIODICAL: Fizika tverdogo tela, v. 3, no. 12, 1961, 3637 - 3644

TEXT: Internal friction, dislocation density, and birefringence of LiF single crystals have been studied. The dislocation density was varied by deformation of the crystals under different stresses, and the defect concentration was varied by X-ray treatment. The internal friction was determined from the attenuation of 100-kc longitudinal waves. The measurements were made at a relative deformation amplitude of $3 \cdot 10^{-7}$, at a residual atmospheric pressure of 10^{-2} mm Hg, and at room temperature. The dislocation density was calculated from the number of etch patterns on the {100} faces. The etching agent was a 3% $FeCl_3$ solution. The

Card 1/0 3

internal friction of all the preliminarily deformed specimens diminished when resting at room temperature. A stable decrement of attenuation was reached after 1 to 2 hrs. Since the dislocation density remains constant during this time, it is assumed that this recovery phenomenon is related to a fixing of the point dislocations formed during deformation. The birefringence due to the loading of the single crystals vanishes after removal of the load if the deformations were elastic. When deformations are plastic a residual birefringence is observed after load removal. From this limit internal friction and dislocation density increase rapidly. Further increase of stress doubles the decrement of attenuation and increases the dislocation density by two orders of magnitude. The stress at which residual birefringence occurs in conjunction with an increase in internal friction and dislocation density depends on the heat treatment of the specimen. For a specially annealed specimen, the stress amounts to $(3.8 - 4.0)\cdot10^2$ g/mm^2, and for a specimen annealed as usual it amounts to $(5.7 - 7.0)\cdot10^2$ g/mm^2. In order to eliminate the effect of dislocations on the foregoing results from that of point defects, the experi-

ments were repeated with specimens X-rayed for different times (Figs. 3 and 4). The irradiation improved the strength of the specimens. Non-irradiated specimens were destroyed at a stress of $(7 - 8)\cdot10^2$ g/mm^2 while irradiated specimens were destroyed only at $1\cdot10^3$ g/mm^2. The results are interpreted using the dislocation theory of internal friction. In the 100 kc range the amplitude-independent portion of internal friction in plastic deformation of LiF single crystals depends chiefly on the scattering of mechanical energy by dislocations. Ye. G. Shvidkovskiy is thanked for interest and advice. There are 5 figures, 3 tables, and 8 references: 4 Soviet and 4 non-Soviet. The four references to English-language publications read as follows: A. Granato, K. Lücke. J. Appl. Phys., 27, 513, 1956; J. S. Koehler. Imperfections in nearly perfect crystals, N. Y., 1952; A. Granato, K. Lücke; Proc. of the Lake Placid Conference, N. Y., 1958; R. G. Brackenridge. Imperfections in nearly perfect crystals, N. Y., 1952, J. Chem. Phys., 18,913, 1952.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute)

S/070/60/005/003/019/024/XX
E132/E460

AUTHORS: Predvoditelev, A.A., Tyapunina, N.A. and Bystrikov, A.S.

TITLE: An Investigation of the Spatial Distribution of Dislocations in Cadmium

PERIODICAL: Kristallografiya, 1960, Vol.5, No.3, pp.432-436 + 2 plates

TEXT: A special microscope stage has been constructed for observing the distribution of dislocations in the surface of a cadmium crystal during the actual process of electrolytic etching in a solution of one part orthophosphoric acid, one part water and two parts glycerine. The crystal was suspended in the electrolyte, chosen to have the same refractive index as the immersion oil, only 0.2 mm away from a thin glass window in the base of the cell which formed the cover slip for microscopic examination from below with a metallurgical microscope. The electrolyte was pumped past the surface to give uniform conditions and a cinematograph record was made of the surface which dissolved at the rate of 0.4 microns per minute. Various crystallographic planes were studied. The variety of the etch figures observed can be explained using a single unified picture of the dislocational

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S/070/60/005/003/019/024/XX
E132/E460

An Investigation of the Spatial Distribution of Dislocations in Cadmium

structure and the presence of configurations in the crystals corresponding to different stages of active Frank-Read sources. The nature of the distribution of dislocations in the crystal corresponds basically to the presence of screw dislocations in 1000 planes with Burger's vectors $b = a$ lying in these planes. A count of the spiral formation in the basal plane give a dislocation density of $1.3 \times 10^5/cm^2$. In the $10\bar{1}0$ plane the density is $3.1 \times 10^6/cm^2$ if calculated from basal plane observations or 2.6×10^6 from the number of lines on the prism plane. The mean distance between planes in which spiral formation occurs is 2.5 μ, which agrees roughly with earlier measurements of the distances between slip bands in deformed cadmium crystals.
Acknowledgments to Ye.G.Shvidkovski for his advice. There are 8 figures and 10 references: 3 Soviet, 1 German and 6 English.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im.M.V.Lomonosova (Moscow State University im. M.V.Lomonosov)

SUBMITTED: December 15, 1959

Card 2/2

SHVIDKOVSKIY, Ye.G.; DURGARYAN, A.A.; TYAPUNINA, N.A.

Mechanism of internal friction in crystals subjected to plastic deformations. Nauch.dokl.vys.shkoly; fiz.-mat.nauki no.5:172-176 '58. (MIRA 12:7)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Metal crystals)

TYAPUNINA, N. A.

by Z. G. Pinsker ("Basis of diffractional methods of investigation of perfect crystals"), B. M. Rovinskiy and L. M. Rybakova ("Investigation of dependence of mechanical properties on characteristics of structure of metals"-), L. M. Utevskiy and P. M. Usikov ("Application of microscopy in investigation of structure of alloys"), A. A. Predvoditelev and N. A. Tyapunina ("Role of reproduction of dislocations in process of plastic flow"), A. V. Pertsov, N. V. Pertsov and E. D. Shukin "Self-producing internal dispersion of metals under action of strongly superficially-active metallic melting") and I. L. Mirkin ("Problems of structural investigations, advanced by requirements of progress of technology").

reports presented at the 3rd Intervuz Conference on Strength and Ductility of Metals, Petrozavodsk State University, 24-29 June 1963.
(reported in Fizika Metallov i Metallovedeniye, Vol. 16, No. 4, 1963, p 640.
JPRS 24,651 19 May 1964.

SOV/126-7-6-8/24

AUTHORS: Predvoditelev, A.A. and Tyapunina, N. A.

TITLE: Etch Pits and Dislocations in Mono and Polycrystals of Cadmium

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 7, Nr 6, pp 855-861 (USSR)

ABSTRACT: In this paper a method for the etching of cadmium is described and an attempt is made to correlate the various characteristic distributions of pits in non-deformed and deformed crystals with the dislocation theory. The majority of the specimens investigated were made of 99.957% pure cadmium (0.02% Pb, 0.01% Zn, 0.01% Cu and 0.003% Fe). Micro-sections were polished electrolytically in an electrolyte of the following composition: two parts ortho-phosphoric acid, two parts glycerine and one part water (Ref 2). A stainless steel plate was used as the cathode. The electro-polishing process and etching was controlled by the electrode voltage, the optimum voltage being 2.1 to 2.2 V. The polishing was carried on for 9 to 12 minutes. Etching was carried out in the same electrolyte but at lower voltage (0.9 to 1.0 V) for various lengths of time between 20 and 40 secs.

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Etch Pits and Dislocations in Mono and Polycrystals of Cadmium

Sometimes etching occurred during the polishing process, in which case the sections were investigated microscopically without further etching. Individual pits had different geometrical shapes depending on the orientation of the crystal, namely, hexagonal, rectangular or triangular. However, in a number of cases the pits had an irregular shape, their cross-section being practically oval or round. In non-deformed crystals the etched pits were arranged in the form of a chain, often coinciding with the direction of growth, or they appeared dispersed. Fig 1 shows a photomicrograph of a chain of dislocations of variable density in a polycrystal of cadmium at a large magnification. The equilibrium of a linear chain of dislocations lying in one slip plane has been theoretically considered by Eshelby et al.(Ref 4). According to this theory, the distances X between an obstruction and the dislocations, at uniform macroscopic stresses with identical Burgers vectors for all dislocations, must be proportional to the squares of the radicals of the Bessel function.

Etch Pits and Dislocations in Mono and Polycrystals of Cadmium

$$X = \frac{Gb}{(G\tau_o(1-\nu)n\pi} j^2$$

where G is the modulus of slip,
b the Bürgers vector,
τ_o the macroscopic shear stress,
ν is the Poisson coefficient and
n the total number of dislocations in the chain.

If the etched pits correspond to the places at which dislocations occur, the graph representing the dependence of the distance between the obstruction and the corresponding pit on the square of the Bessel function root must be a straight line, see graph, Fig 2. In Fig 3 a photomicrograph is reproduced of a chain of dislocations disposed between two obstructions. In Fig 4 etch pits in a plastically deformed monocrystal are shown (a - appearance of a specimen after removal of slip lines from its surface; b - a redeformed specimen). In Fig 5 etch pits in a twinned cadmium monocrystal are shown. In Fig 6 spiral etch figures can be seen in polycrystalline

Etch Pits and Dislocations in Mono and Polycrystals of Cadmium

cadmium after annealing. In Fig 7 a single spiral is shown at a large magnification. In Fig 8 various shapes of spiral etch figures are shown. It is not possible yet to explain the origin of complicated etch figures. It can be assumed that they are brought about by spiral dislocations in the body of the specimen. Acknowledgments are made to Professor Ye. G. Shvidkovskiy for his valued advice and constant interest in the work.
There are 8 figures and 9 references, 1 of which is Soviet, 7 English and one International.

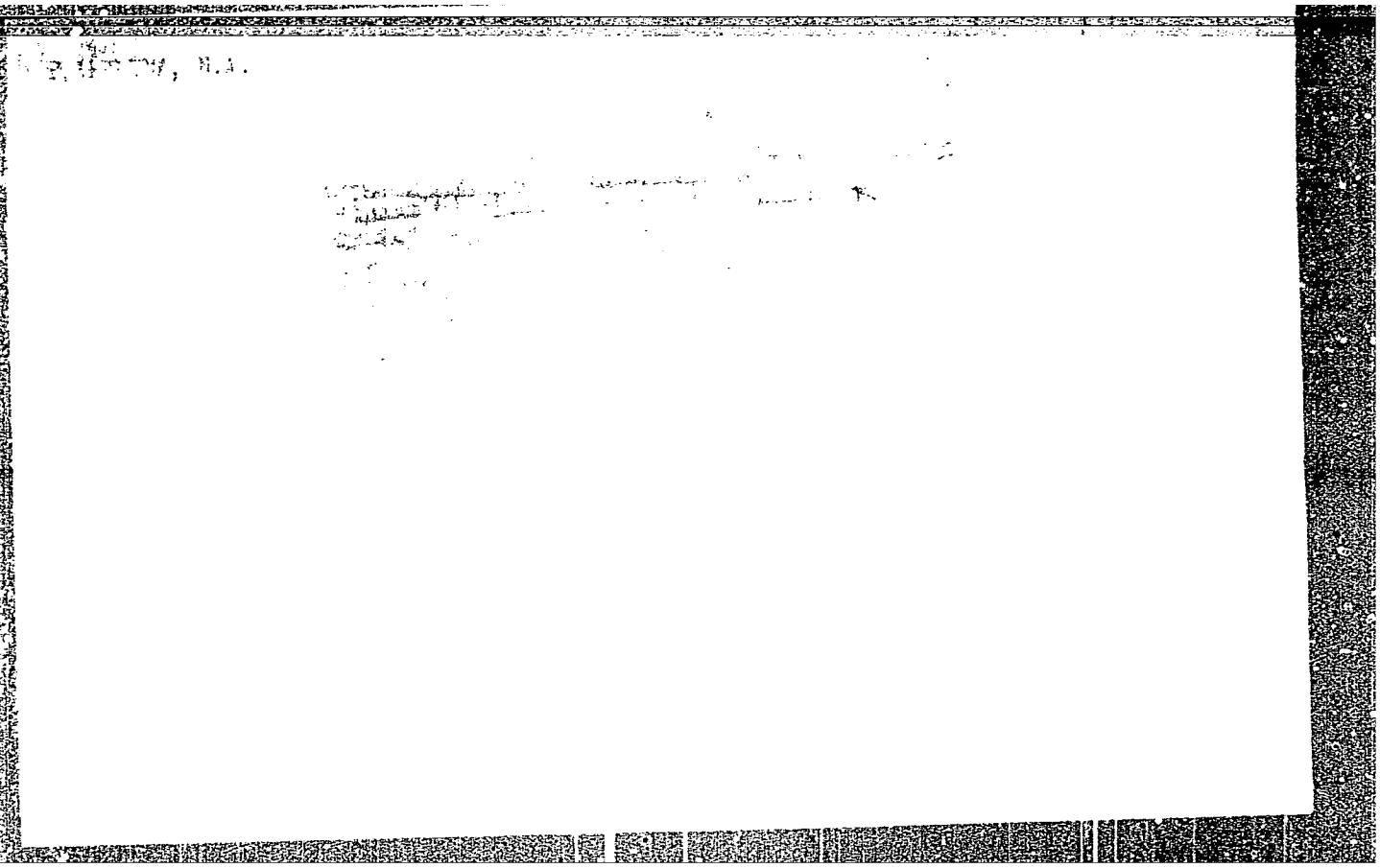
ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: August 5, 1957
Card 4/4

TYAPUNINA, N. A.

Dissertation: "Investigation of the Temperature Relation of Heat Conductivity, Electrical Conductivity, and Specific heat of Low-Melting-Point Metals and Their Alloys." Cand Phys-Math Sci, Moscow Order of Lenin State U imeni M. V. Lomonosov, 12 May 54.
Vechernyaya Moskva, Moscow, 3 May 54.

SO: SUM 284, 26 Nov 1954



BELOZEROVA, E.P.; TYAPUNINA, N.A.; SHVIDKOVSKIY, Ye.G.

Multiplication of dislocations in alkali halide crystals under the action of high-frequency vibration. Kristallografiia 8 no.2:232-237 Mr-Ap '63. (MIRA 17:8)

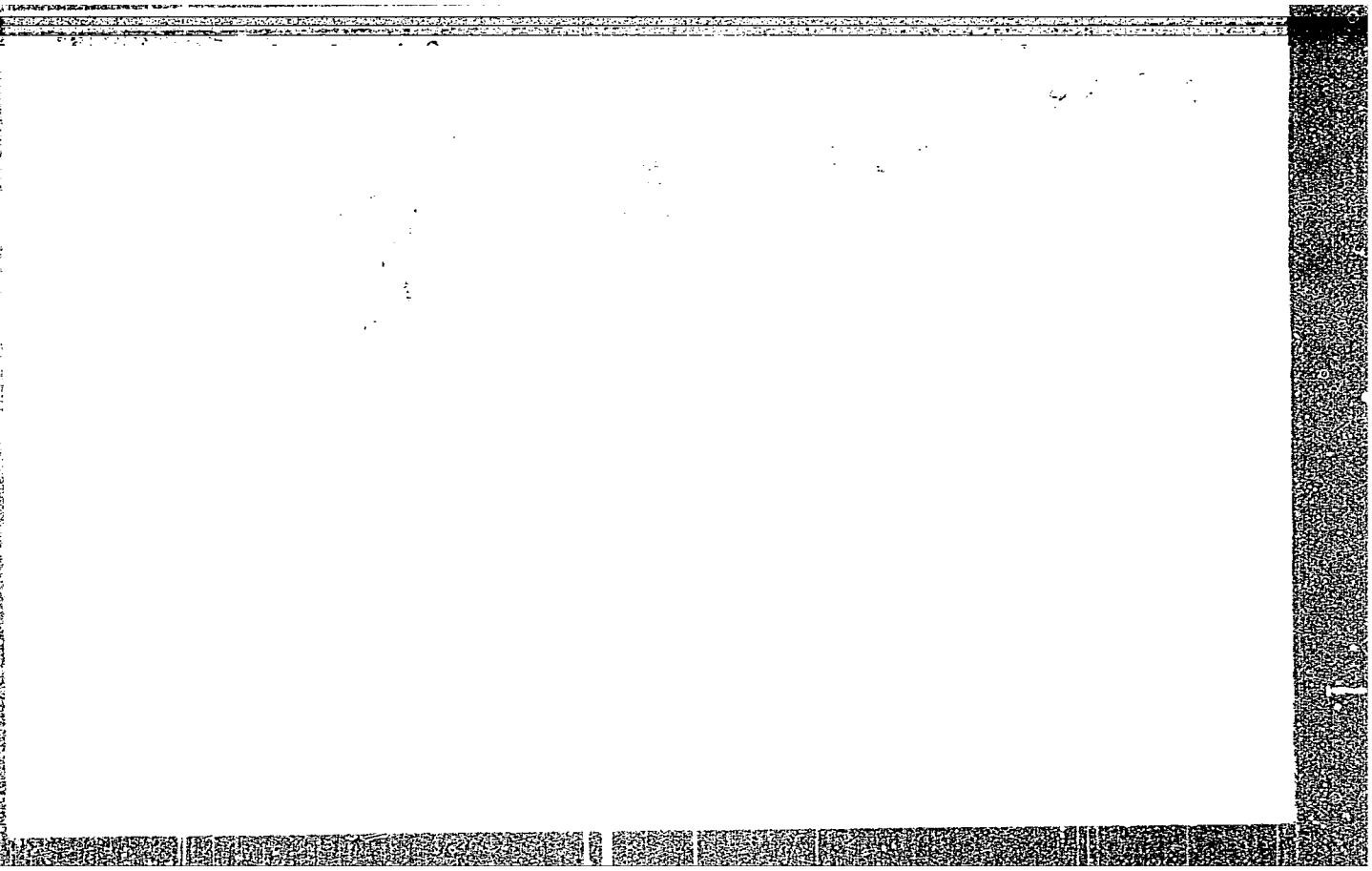
1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

TYAPUNINA, N. A.

Vliyaine predvaritel'noy plasticheskoy deoormatsin i otzhiga na izotermicheskoye vnutrenneye trenie monokristallov vismuta."

report submitted for 6th Gen Assembly, Intl Union of Crystallography, Rome, 9 Sep 63.

Physics Faculty, Univ of Moscow.



APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001757710013-9"

TYARASOV, G., inzh.

Future belongs to oil-hydraulic machinery. NTO 5 no.2:35-38 F '63. (MIRA 16:3)

(Oil-hydraulic machinery) (Agricultural machinery)

TYARASOV, G., izobretatel', starshiy nauchnyy sotrudnik

Piston or rotor? Izobr. i rats. no.8:5-6 Ag '62. (MIRA 15:9)
(Agricultural machinery) (Hydraulic machinery)

1. TYARKIN, S. S.

2. USSR (600)

4. Milking

7. Increasing butterfat in milk by applying heat to the udder. Sots zhiv No 1 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

FD 417

TYARUTOVA, G. V.
USSR/Nuclear Physics - C ..ic rays in meteorology

Card 1/1 Pub. 147-3/16

Author : Dorman, L. I.; Kuz'min, A. I.; Tyanutova, G. V.; Feynberg, Ye. L.; Shafer, Ya. G.

Title : Variations in the intensity of cosmic rays and the role of meteorological factor

Periodical : Zhur. eksp. i teor. fiz. 26, 537-544, May 1954

Abstract : Briefly expound the results of an experimental and theoretical study of the influence of meteorological factors on the observed (at sea level) intensity of the hard component of cosmic rays. Show that knowing the distribution of temperature in the atmosphere above the observation point one can allow for the meteorological factors with an accuracy up to 0.1 to 0.2% in the intensity of cosmic rays. Here the remaining divergence lies within the limits of error of the given meteorological sounding. It turns out that the seasonal variations in the intensity of the hard component are due to meteorological factors. The daily variations are essentially masked by these factors.

Submitted : October 27, 1953

Prospecting for deep-seated nickel mineralization using geophysical methods. Razved. i okh. nedr 30 no.3:31-33 Mr '64.

1. Vsesoyuznyy nauchno-issledovatel'skiy institut [illegible] tekhniki razvedki glubokozalegayushchikh rudnykh tel.

M. V. ALANIYA, O. M. BLOKH, Ya. L. BLOKH, A. M. CHETIYA, L. I. DORMAN
I. S. ZAMENER, T. V. KEBULADZE, V. K. KOYAVA, Ye. V. KOLOMEYETS, V. O. KORIDZE,
V. S. PIVEREVA, M. I. TYASTO

Cosmic Ray Effects During Magnetic Storms

Report submitted for the 8th Intl. Conf. on Cosmic Rays (IUPAP), Jaipur India,
2-14 Dec 1963

DORMAN, I.I.; TYASTO, M.I.

Effect of the equatorial current on variations in the geomagnetic cutoff rigidity of cosmic ray particles. Izv. AN SSSR Ser. fiz. 28 no.12:1966-1972 D '64 (MIRA 18:2)

ACCESSION NR: AT3012747 S/2961/60/000/002/0142/0145

AUTHORS: Ol', A. I.; Tyasto, M. I.

TITLE: Connection between cosmic-ray intensity and magnetic activity and radio emission from the sun

SOURCE: AN SSSR. Mezhduvedomst. komit. po prov. mezhdunarodn. geofizich. goda. 7 razdel program. MGG. Kosmicheskiye luchi. Sb. statey, no. 2, 1960, 142-145

TOPIC TAGS: cosmic rays, cosmic ray intensity, magnetic activity, solar radio emission, sunspot, sunspot cycle, cosmic ray meson component, cosmic ray neutron component

ABSTRACT: The relation between the radio emission of the sun, the intensity of the cosmic rays, and the magnetic activity is investigated using solar radio emission data recorded in 14 Soviet and foreign stations, and data on the cosmic-ray meson and neutron com-

Card 1/2

ACCESSION NR: AT3012747

ponents. The method of superposition of the epochs is used. The various procedures used in the investigations are described. The results show that in 1958 and in 1951--1952, i.e., both during the maximum epoch and during the epoch of relatively high solar activity on the decreasing branch of the 11-year cycle, the intensified radio emission connected with the decreased intensity of the cosmic rays gives a clearly pronounced increase in the magnetic activity. At the same time, the radio emission maxima connected with the increase in the intensity of the cosmic rays are accompanied by a decrease in the magnetic activity. In 1953--1955 this effect became less noticeable but the difference remains the same. These conclusions are compared with results by others (E. Tandberg-Hanssen, Astrophysica Norvegica, 1956, v. 5, 9 and M. Kodama and K. Murakama, J. Geomagn. and Geoelectr. 1956, v. 8, 2). Orig. art. has: 2 figures.

ASSOCIATION: None

Card 2/3

L 26463-66 EWT(1)/FCC/EWA(h) GW

ACC NR: AP6012056 SOURCE CODE: UR/0203/65/005/005/0809/0816

44

AUTHOR: Asaulenko, L. G.; Dorman, L. I.; Smirnov, V. S.; Tyasto, M. I.

ORG: Polar Geophysical Institute, Kola Branch, AN SSSR (Polyarnyy geofizicheskiy instit t Kol'skogo filiala AN SSSR)

TITLE: Effect of limitation of the geomagnetic field on cosmic rays

SOURCE: Geomagnetizm i aeronomiya, v. 5, no. 5, 1965, 809-816

TOPIC TAGS: geomagnetic field, cosmic ray, solar wind, magnetic storm

ABSTRACT: The earth's magnetic field, at least in the direction of the sun, is limited and its extent is dependent on the density and energy of particles in the solar wind. This article discusses the effect of compression of the magnetosphere caused by the solar wind on the cutoff rigidities and asymptotic directions of cosmic rays. Limitation of the magnetosphere influences cosmic rays not only in the period of the initial phase of a magnetic storm, but also when the magnetic field is quiet. It is demonstrated that the compression leads to intensification of the influence of the magnetic field on cosmic rays and that the joint effect of limitation of the magnetosphere and the westerly current system leads to attenuation of the influence of external sources both on cutoff rigidity and on asymptotic directions. The authors thank the workers of the Computer Center, Kola Branch, AN SSSR for programming the problems and calculations on the electronic computer. Orig. art. has: 3 figures, 9 formulas, and 3 tables.

/JPRS/

SUB CODE: 08, 03, 04 / SUBM DATE: 14Sep64 / ORIG REF: 004 / OTH REF: 013

Card 1/1

37939

S/035/62/000/005/034/098
A055/A101

3.1800

AUTHORS: Ol', A. I., Tyasto, M. I.

TITLE: On the relation between the cosmic rays intensity and the magnetic activity and radio emission of the Sun

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 5, 1962, 33, abstract 5A260 (V sb. "Variyatsii kosmichesk. luchey i solnechn. korpuskulyarn. potoki, no. 2", Moscow, AN SSSR, 1960, 142-145, English summary)

TEXT: It is shown that a sharp growth of geomagnetic activity occurs on the days with a high solar radio emission level, coinciding with a decrease in the intensity of cosmic rays. The radio emission maxima related to the growth of the cosmic rays intensity are accompanied by a decrease of geomagnetic activity.

N. K.

[Abstracter's note: Complete translation]

Card 1/1

37950

S/035/62/000/005/053/098
A055/A101

3.2410 (2205, 2805)

AUTHOR: Tyasto, M. I.

TITLE: Active solar longitudes of the cosmic ray intensity and of the magnetic disturbance

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 5, 1962, 56, abstract 5A414 ("Solnechnyye dannyye", 1961, no. 3, 60 - 63)

TEXT: For the period of IGY-IGC, solar calendars of the geomagnetic index $\Sigma K_p \geq 25$ were devised on days included in geomagnetic storms with sudden commencement; calendars were also devised for the cosmic ray neutron component intensity (on the basis of the data supplied by the station on the Kheys island) and for the Forbush-type cosmic ray intensity drops. The statistical processing of the obtained results shows that both cosmic ray characteristics indicate one active longitude, whereas the distribution of magnetic storms with sudden commencement - two active longitudes, one of which coincides with the longitude that is characteristic for cosmic rays. To this active longitude correspond more than 50% of all world-scale Forbush-type intensity drops. The obtained results

Card 1/2

KOLOMEYETS, Ye.V.; TYASTO, M.I.

Effect of "small" solar flares in cosmic rays during the maximum of solar activity. Geomag. i aer. 1 no.4:507-509 Jl-Ag '61. (MIRA 14:12)

1. Kazakhskiy gosudarstvennyy universitet i Leningradskoye otdeleniye Instituta zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR.

(Cosmic rays)
(Solar radiation)

L 15935-66 EWT(1)/FCC/EWA(h) GW

ACC NR: AM6003525 SOURCE CODE: UR/3184/65/000/007/0121/0130

AUTHOR: Dorman, L. I. (Dr. of Physico-Mathematical Sciences); Tyasto, M. I.

ORG: none

TITLE: Effect of a filamentary equatorial current ring on the geomagnetic cutoff hardness of directional cosmic radiation

SOURCE: AN SSSR. Mezhduvedomstvennyy geofizicheskiy komitet. Kosmicheskiye luchi, no. 7, 1965, 121-130

TOPIC TAGS: magnetic rigidity, cosmic radiation, geomagnetism

ABSTRACT: The threshold hardnesses are numerically calculated for particles arriving at various angles to the zenith. The results are given in the form of curves for cutoff hardness as a function of zenith angle for eastern and western directions of particle arrival. Curves are also given showing the relationship between threshold hardness and geomagnetic latitude for various zenith angles in the east-west plane. These curves show that a reduction in the radius of the current ring or an increase in the ring current reduces the threshold hardnesses for both eastern and western

Card 1/2

L 15935-66

ACC NR: AT6003525

directions. This indicates that there should be a reduction in east-west asymmetry at lower latitudes during the main phase of a magnetic storm due to the change in cutoff hardness. Orig. art. has: 5 figures, 6 formulas.

SUB CODE: 08/ SUBM DATE: 00/ ORIG REF: 006/ OTH REF: 006

041

FW

Card 2/2

S/058/62/000/010/044/093
A061/A101

AUTHOR: Tyasto, M. I.

TITLE: Empirical determination of the temperature effect of the hard component of cosmic rays on Hayes Island (Emperor Francis-Joseph's Land)

PERIODICAL: Referativnyy zhurnal, Fizika, no. 10, 1962, 61, abstract 10B458 (In collection: "Kosmicheskiye luchi, no. 3", Moscow, AN SSSR, 1961, 170 - 173, summary in English)

TEXT: Data obtained from the empirical determination of variations of the hard component of cosmic rays on Hayes Island (in 1958), related to changes of atmospheric temperature, are presented. It is noted that the intensity of the hard component of cosmic rays, recorded by a cubic telescope and adjusted to the temperature effect in the experimental way, with sufficient accuracy reflects the changes of the primary flux, whereas the adjustment by Dorman's method for the given station and instrument does not eliminate completely the temperature effect owing to unknown causes.

[Abstracter's note: Complete translation]

Card 1/1

37306
S/169/62/000/004/091/103
D218/D302

3.2410 (2205, 2705, 2805)

AUTHOR: Tyasto, M.I.

TITLE: An empirical determination of the temperature effect in the hard component of cosmic rays at Kheys island

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 4, 1962, 17, abstract 4G93 (V sb. Kosmicheskiye luchi, no. 4, M., AN SSSR, 1961, 170-173)

TEXT: An attempt is made to use the data on the hard component of cosmic rays recorded at Kheys island in 1958 to determine empirically the density of temperature coefficients. The analysis is carried out by the method of multiple correlation using data on the radio sounding of the atmosphere and variations in the intensity of the neutron component corrected for the barometric effect. By using the temperature coefficient density derived in this way it was possible to exclude completely the annual temperature wave from the cosmic-ray temperature variations. [Abstractor's note: Complete translation].

Card 1/1

S/169/61/000/012/082/089
D228/D305

AUTHORS: Ol', A. I., and Tyasto, M. I.

TITLE: The relation of the intensity of cosmic rays to the magnetic activity and radio-emission of the sun

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 12, 1961, 11, abstract 12G62 (V sb. Variatsii kosmich. luchey i solnechn. korpuskulyarn. potoki. no. 2. M., AN SSSR, 1960, 142-145)

TEXT: It has been shown that an abrupt growth in the geomagnetic activity is observed on days with a high level of solar radio-emission coinciding with the reduction in the cosmic-ray intensity. The radio-emission maxima related to the growth of the cosmic-ray intensity are accompanied by reduction of the geomagnetic activity. [Abstracter's note: Complete translation.]

Card 1/1

TYAYAR, Kh. A.

Cand Tech Sci - (diss) "Study of process of weld seaming using friction for the purpose of use in restoring worn parts of motor vehicles and tractors." Leningrad- Pushkin, 1961. 16 pp; (Ministry of Agriculture RSFSR, Leningrad Agricultural Inst); 250 copies; price not given; (KL, 6-61sup, 226)

1.2310

22947
S/125/61/000/007/003/013
D040/D112

AUTHOR: Tyayar, Kh.A.

TITLE: Calculations and investigations of friction surfacing

PERIODICAL: Avtomaticheskaya svarka, no.7, 1961, 33-39

TEXT: In this process, which has already been described (Ref.1: Kh.A.Tyayar, "Avtom.svarka", no.4, 1960), a rotating rod of surfacing metal is pressed against the rotating workpiece, whereby some of the metal is fused on to the workpiece due to frictional heat. The rod metal on the periphery of the contact surface heats to 1100-1400°C (due to high velocity) and is squeezed out, so that pressure is actually applied to the rod center only (Fig.1). The k factor (proportionality factor) was determined by integration of the values of the elementary pressure into infinitely small ring surfaces, on the rod and the pressure distribution law determined by the formula:

$$P_x = \frac{3p}{\pi r_o^3} (r_o - r_x), \qquad (2)$$

where p is axial pressure on the rod (friction surface), r_x - the radius of

Card 1/6

Calculations and investigations ....

the observed point, r_o - the radius of the rod and p_x - the specific pressure at a distance x from the center of the rod. The article gives the calculation results in graphs (Fig. 2, 3, 7, 8). Generally, the electric power applied in the process must be proportional to the rod radius (Fig.2), and (as determined in calculations and experiments) the friction factors vary from 2.5 to 4.5. The high friction factor value is due to the continuous tearing of particles off the rod end. The rod end must be supported to prevent vibration, and a ball bearing stay is used for this purpose. It is calculated that friction heat penetrates only a short distance into steel rods, and the support stay may be placed 2 cm from the rod work face. The surfacing conditions have a great effect on the quality of the surfacing. Fusion starts at a pressure not below 0.3 kg/mm^2. The weight of the deposited metal increases with an increase in the pressure applied to the rod up to a certain limit, after which it fails to increase. Some of the rod material is forced out radially when the rotary speed of the rod and the pressure applied to it are excessive, and has to be removed during the surfacing process with a special cutter. The microstructure of the deposited metal is finer grained than that of the initial rod metal, and its hardness corresponds to sorbite after quenching. The workpiece heats less than the rod.

Card 2/6

22947
S/125/61/000/007/003/013
D040/D112

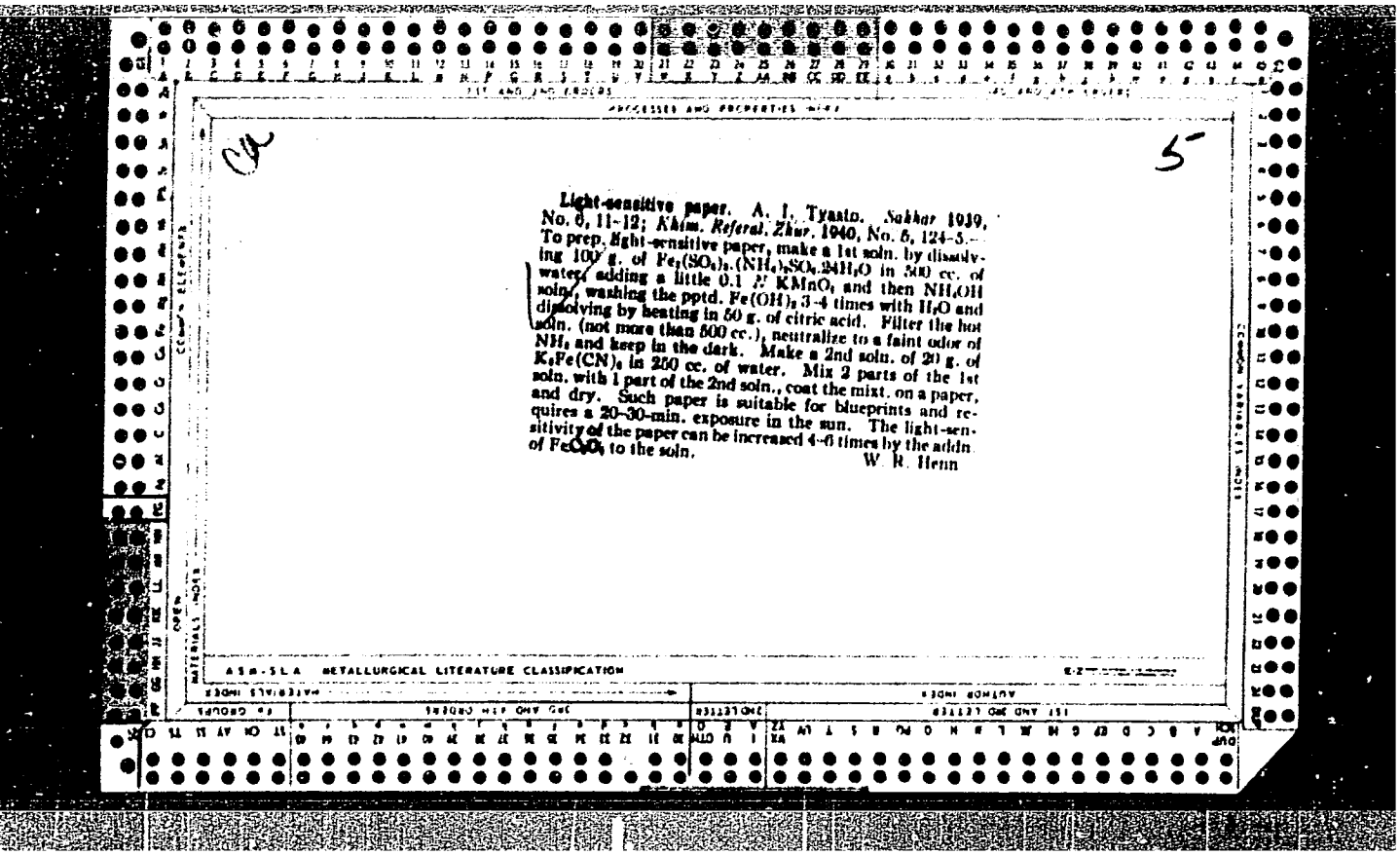
Calculations and investigations ....

Surfacing by this method can be carried out with complete, partial or no welding of the coating layer to the base metal. The same principle can be used for butt joints of tubes. Conclusions: (1) The power required for the process depends on the rod diameter and heat propagation in metal. The rod length heated above 150°C does not exceed three rod diameters (from the face). (2) Pressure on the rod face varies from 0.3-0.8 kg/mm^2. (3) Friction surfacing is possible with as well as without welding of the coating to the base metal. (4) The coated metal has fine-grain structure and higher wear resistance than that of the initial materials; pores are absent. 5) Friction surfacing is applicable for butt welding of tubes. There are 11 figures and 3 Soviet-bloc references." ....

ASSOCIATION: Akademiya sel'skokhozyaystvennykh nauk Estonskoy SSR
(Academy of Agricultural Sciences Estonskaya SSR)

SUBMITTED: May 5, 1960

Card 3/6



Light-sensitive paper. A. I. Tyanto. *Sakhar* 1939, No. 6, 11–12; *Khim. Referat. Zhur.* 1940, No. 5, 124–5.—To prep. light-sensitive paper, make a 1st soln. by dissolving 100 g. of $Fe_2(SO_4)_3.(NH_4)_2SO_4.24H_2O$ in 500 cc. of water, adding a little 0.1 *N* $KMnO_4$ and then NH_4OH soln., washing the pptd. $Fe(OH)_3$ 3–4 times with H_2O and dissolving by heating in 50 g. of citric acid. Filter the hot soln. (not more than 500 cc.), neutralize to a faint odor of NH_3 and keep in the dark. Make a 2nd soln. of 20 g. of $K_3Fe(CN)_6$ in 200 cc. of water. Mix 2 parts of the 1st soln. with 1 part of the 2nd soln., coat the mixt. on a paper, and dry. Such paper is suitable for blueprints and requires a 20–30-min. exposure in the sun. The light-sensitivity of the paper can be increased 4–6 times by the addn. of FeC_2O_4 to the soln.

W. R. Henn

DARKOV, G.V.. Prinimali uchastiye: GORCHEV, I.I.; DREYSIN, G.I.; DRABENOK, P.D.; LUK'YANOVA, Ye.D.; PASEKOVA, V.D.; TYATOVA, G.S.; FILIPPOVA, A.N.. IL'VOVSKIY, S.Z., otv.red.; ROSHCHINA, L., red.; TELEGINA, T., tekhn.red.

[Local budgets of the U.S.S.R.; statistical collection] Mestnye biudzhety SSSR; statisticheskii sbornik. Moskva, Gosfinizdat, 1960. 326 p. (MIRA 13:7)

1. Russia (1923- U.S.S.R.) Byudzhetnoye upravleniye. (Budget--Statistics)

ACC NR: AP7003282 SOURCE CODE: UR/0250/66/010/012/0945/0949

AUTHOR: Konovalov, Ye. G. (Corresponding member AN BSSR); Tyavlovskiy, M. D.

ORG: Physicotechnical Institute AN BSSR (Fiziko-tekhnicheskiy institut AN BSSR)

TITLE: Procedure for choosing materials for ultrasonic concentrators

SOURCE: AN BSSR. Doklady, v. 10, no. 12, 1966, 945-949

TOPIC TAGS: ultrasonic equipment, ultrasonic effect, concentration ~~equipment~~ meter, acoustic damping, sonic fatigue/ D16T duraluminum

ABSTRACT: After pointing out that the presently employed materials (steels, metals, ferrite alloys) have numerous shortcomings, major among which are heating and loss of acoustic energy inside the concentrator, the authors propose on the basis of an elementary analysis of the causes of losses and conversion of acoustic energy into heat, that the most suitable materials for this purpose would be those in which the acoustic damping is minimal, and the resistance to fatigue the highest. Duraluminum D16T is found to be best for this purpose, having a loss coefficient smaller by a factor 30 - 50 than steel, and by a factor of about 70 than copper. Other materials suitable for this purpose are monel metal and titanium alloys, but these are too expensive for general use. Orig. art. has: 8 formulas and 1 table.

SUB CODE: 20, 11/ SUBM DATE: 28Jun66/ ORIG REF: 009

Card 1/1

TYAVODA, O. (Chekhoslovakiya, Bratislava); YAVOR, T. (Chekhoslovakiya, Bratislava)

Study of the deformation of plates on models. Stroi. mekh. i rasch. soor. 3 no.5:21-24 '61. (MIRA 14:10)
(Structural frames--Models) (Elastic plates and shells)

TYAVOKIN, V.V.

Use of a cervical vagosympathetic novocaine block in stenocardia and myocardial infarct. Terap.arkh. 31 no.11:41-45 N '59.
(MIRA 13:3)

1. Iz kafedry gospital'noy terapii (zaveduyushchiy - prof. K.A. Dryagin) Leningradskogo pediatricheskogo meditsinskogo instituta.
(ANGINA PECTORIS ther.)
(MYOCARDIAL INFARCT ther.)
(ANESTHESIA CONDUCTION)
(PROCAINE ther.)

TYAVOKIN, V.V. (Leningrad)

Mechanism of action of cervical vagosympathetic novocaine block in coronary circulatory insufficiency. Pat. fiziol. i eksp. terap. 5 no.2:57-60 Mr-Ap '61. (MIRA 14:5)

1. Iz kafedry gospital'noy terapii (zav. - prof. K.A.Drygin) Leningradskogo pediatricheskogo meditsinskogo instituta i otdela obshchey fiziologii (zav. - prof. A.V.Nikkl') Instituta eksperimental'noy meditsiny AMN SSSR.

(CORONARY HEART DISEASE) (NOVOCAINE)

TYAVOKIN, V.V., kand.med.nauk

Evaluation of the changes in the electrocardiogram in coronary insufficiency. Kaz.med.zhur. no.3:8-11 My-Je '62. (MIRA 15:9)

1. Kafedra gospital'noy terapii (zav. - prof. K.A.Dryagin) Leningradskogo pediatricheskogo meditsinskogo instituta.
(CORONARY HEART DISEASE) (ELECTROCARDIOGRAPHY)

TYAVOKIN, V. V., Candidate Med Sci (diss) -- "The therapeutic significance of cervical vagosympathetic novocaine blockade in disorders to venous circulation (Clinical-experimental investigation)". Leningrad, 1959. 19 pp (Leningrad Pediatric Med Inst), 250 copies (KL, No 25, 1959, 142)

TYAVOKIN, V.V., kand.med.nauk

Electrocardiographic dynamics in coronary insufficiency in connection with changes in the hospital regime. Trudy LPMI 31 no.2:366-373 '63. (MIRA 17:10)

1. Iz kafedry gospital'noy terapii Leningradskogo pediatricheskogo meditsinskogo instituta.

25(1)

S/125/60/000/04/006/018
D042/D006

AUTHOR: Tyayar, Kh.A.

TITLE: An Investigation on Friction Surfacing

PERIODICAL: Avtomaticheskaya svarka, 1960, Nr 4, pp 31-35 (USSR)

ABSTRACT: This is a detailed description of a new method of surfacing parts by using friction. Figure 1 illustrates the essence of this process. A quickly rotating rod (1,500 - 4,000 r/m), under a certain pressure, (0.3 -- 0.5 kg/mm^2), contacts the part to be coated, and both are heated by the friction. Then plastic flow of the rod material takes place and welding of this material with the part is performed. When sufficient temperature is reached, the part also starts to rotate slowly (0.2 - 0.3 r/m). A spiral bead is formed, but annular beads can also be made. Multilayer surfacing is possible. No preparation of the part's surface is needed, except

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S/125/60/000/04/006/018
D042/D006

An Investigation on Friction Surfacing

that rust should be removed. This method can be widely used in restoring parts. Surfacing can be done on lathes with auxiliary devices. The process is economical. There are 5 photographs and 4 diagrams.

ASSOCIATIONS: Moskovskiy institut mekhanizatsii i elektrofikatsii sel'skogo khozyaystva i Estonskaya Sel'skokhozyastvennaya akademiya (The Moscow Institute of Mechanization and Electrification of Agriculture and the Estonian Agricultural Academy).

SUBMITTED: July 13, 1959

Card 2/2

SOV/135-59-10-10/23

18(5), 25(1)

AUTHOR: Tyayar, Kh.A., Engineer

TITLE: Friction Welding as a Means of Restoration of Worn Parts

PERIODICAL: Svarochnoye proizvodstvo, 1959, Nr 10, pp 23-24 (USSR)

ABSTRACT: The author presents possibilities of using friction welding for the restoration of the dimensions of worn machine parts. Experiments were made at the Chair of Metal Technology of the Estonian Agricultural Academy. Fig.1 shows a scheme of re-coating metallic surfaces by friction welding. Fig.3 shows a device for coating metallic surfaces by friction welding. To get a high quality coating, every specific pressure needs a corresponding rotation speed of the rod and the component. When welding-on with high rotational speed of the rod, the component cannot be heated enough, so that the coating lies on the cold metal and no welding takes place. The process of coating can be automated easily. This process is also economical. The expenditure of electric power with a restored thickness of the worn part of 2-3 mm is 10-25 W/mm^2, which is much less than is needed for arc welding. There are 4 photographs, 1

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SOV/135-59-10-10/23

Friction Welding as a Means of Restoration of Worn Parts

diagram and 1 graph.

ASSOCIATION: Moskovskiy institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva (Moscow Institute for Mechanization and Electrification of Agriculture)

Card 2/2

TYAYAR, Kh.A.

Design and investigation of friction hard facing. Avtom.svar. 14 no.7:33-39 Jl '61. (MIRA 14:7)

1. Akademiya sel'skokhozyaystvennykh nauk Estonskoy SSR.
(Hard facing) (Friction)

IVANOV, S.; TYAZHELKOV, A.

Promoters of technical development. NTO 4 no.12:12 D '62. (MIRA 16:1)

1. Predsedatel' smotrovoy komissii Belomorsko-Onezhskogo basseynovogo pravleniya nauchno-tekhnicheskikh obshchestv (for Ivanov). 2. Chlen Belomorsko-Onezhskogo pravleniya nauchno-tekhnicheskikh obshchestv (for Tyazhelkov).
(Inland water transportation)

TYAZHELKOVA, P.I.

Functional restoration of the upper extremity after arthrodesis of the shoulder joint in poliomyelitis sequelae in children. Ortop.travm.i protez. 21 no.6:42-47 Je '60. (MIRA 13:12)
(POLIOMYELITIS) (SHOULDER JOINT--SURGERY)

NIKIFOROVA, Ye.K., prof.; TYAZHELKOVA, P.O.; SAMOYLOVA, L.I.

Remote results of open fixation of congenital hip dislocation in children and adolescents. Khirurgiia (Sofiia) 16 no.10: 897-906 '63.

1. TSentralen institut po travmatologiia i ortopediia, Moskva. Direktor: prof. M.V.Volkov.

TYAZHEL'MKOV, A. D.

20897 Krylov, G. V. i Tyazhel'mkov, A. D. I. V. Michurin i sibiryaki, /O perepiske I. V. Michurina s sadovodami/ Sad i ogorod., 1949, No. 6, s. 35-38

SO: LETOPIS ZHURNAL STATEY - Vol. 28, Moskva, 1949

MOSCOW ORDER OF LABOR RED BANNER ENGINEERING CONSTRUCTION INST IMENI V.V. KUYBYSHEV

TYAZHELOV, B.P. (Engr) -- "Preparation for the Cultivation of not Permanently Frozen Grounds." Sub 8 Apr 52, Moscow Order of Labor Red Banner Engineering Construction Inst imeni V.V. Kuybyshev. (Dissertation for the Degree of Candidate in Technical Sciences)

SO: VECHERNAYA MOSKVA, January-December 1952

TYAZHELOV, V. I.

TYAZHELOV, V. I.--"Study of the Drilling of Frozen Clay under the Conditions Prevailing at Khramtsovskiy Pit No 1." (Dissertations For Degrees In Science and Engineering Defended at USSR Higher Educational Institutions)(29) Min Higher Education USSR, Glavgormetvuz, Leningrad Order of Lenin and Labor Red Banner Mining Inst, Leningrad, 1954

SO: Knizhnaya Letopis' No 29, 16 July 1955

* For the Degree of Candidate in Technical Sciences

69417

S/141/60/003/01/009/020
E192/E582

9.1400

AUTHOR: Tyazhelov, V. V.

TITLE: An Approximate Evaluation of the Influence of the Irregularities on Uniform Transmission Lines

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1960, Vol 3, Nr 1, pp 89-96 (USSR)

ABSTRACT: The wave propagation in a single conductor line is considered. First, it is assumed that the perturbation of the system is in the form of a metal rod which is fized perpendicularly to the conductor; this represents the practical case of the supporting poles encountered in actual lines. For calculating the currents in the rod it is assumed that: (1) the influence of the conductor on the radiation resistance of the rod is negligible, and (2) the delay is negligibly small. Under these assumptions the problem can be solved by assuming that the rod is equivalent to a symmetrical resonating conductor which is situated in free space. The solution of such a problem is well known (Ref 1). The currents in the rod and the amplitudes of the refracted waves are

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S/141/60/003/01/009/020
E192/E582

An Approximate Evaluation of the Influence of the Irregularities on Uniform Transmission Lines

represented by the equations on p 90. These formulae were employed to evaluate the ratio between the refracted power and the power transmitted in the surface wave as a function of the length L of the rod. The results are plotted in Fig 1. It is seen that the calculated curves (solid lines) are in good agreement with the experimental results (circles in Fig 1). From the above it is concluded that a system of scattering rods can be used as antenna. Such a system is illustrated in Fig 2 together with its directional pattern. The same method can be used to determine the magnitude of "diffraction" coupling between various types of surface waves in the presence of small perturbing objects. The irregularities encountered in actual transmission lines are in the form of small bends which occur at the points where the line is suspended. The presence of these bends leads to partial scattering of incident surface wave and to the

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4

An Approximate Evaluation of the Influence of the Irregularities on Uniform Transmission Lines

transformation of a portion of the incident energy into a surface wave of another type. The magnitude of the transmission coefficient for a bend and the coupling coefficient for the waves of different types can be estimated by using the Huygens-Kirchhoff method. Fig 3 shows the dependence of the losses in the waves of the TM_{01} and HE_{11} type on the angle of the bend φ. The figure also illustrates the relative power loss of the waves. It is seen that the theoretical curves (solid lines in Fig 3) are in good agreement with the experimental values. It is of interest to investigate the validity of the Huygens method by comparing it with the accurate solution. The problem of the diffraction of a surface wave on a step-like discontinuity has been investigated and an accurate solution is known (Ref 4). The formulae for the directional pattern of the scattering field and the power transmission coefficient are in the form of Eqs (1). The meaning of the angle θ in Eqs (1)

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S/141/60/003/01/009/020
E192/E582

An Approximate Evaluation of the Influence of the Irregularities on Uniform Transmission Lines

is explained in Fig 4. On the other hand the application of the Huygens principle leads to the formulae for the directional pattern and the transmission coefficient which are in the form of Eqs (2). By comparing Eqs (1) and (2) it is found that the error in the calculation of the transmission coefficient by employing the approximate expression does not exceed 5% for $\beta_1/\beta_2 = 0.73$ to 1.37.

The directional patterns evaluated by means of the accurate formula and the approximate expression are compared in Fig 4; again it is seen that the error is comparatively small.

There are 5 figures and 5 references, 4 of which are Soviet (1 a translation from English) and 1 English.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: May 15, 1959

TYAZHELOVA, A.A.

4371. WORKING OUT A METHOD FOR OBTAINING BITUMEN FOR ROAD SURFACES FROM TARS OF VOLGA OIL SHALES. Klimov, B.K., Kazakov, P.I., Tyazhelova, A.A. and Vilkhovskaya, A.S. (Izv. Akad. Nauk SSSR, Otdel. Tekh. Nauk (Bull. Acad. Sci. U.S.S.R., Sect. Tech. Sci.), Oct. 1953, 1383-1391). It is hoped to obtain low sulphur liquid fuel, road bitumen, phenols and sulphur from Volga region oil shales. A satisfactory road bitumen was achieved in the laboratory by putting 1 kg of residual tar, boiling at 320°C and above, in a flask, heating to 170-180°C and oxidizing it by bubbling air through at 4/1./min. A batch was made in full scale plant, mixed with sand and stone dust, and tested as a road surface.

12-13-54 ZJP

TYAZHELOVA, A.A.

USSR/Chemistry - Analysis

Card 1/1 : Pub. 124 - 10/24

Authors : Kazakov, E. I., Dr. of Techn. Sc.; and Tyazhelova, A. A., Cand. of Chem. Sc.

Title : Highway asphalt from Volga region shales

Periodical : Vest. AN SSSR 9, 60-61, Sep 1954

Abstract : The chemical and technical properties of asphalt, derived from the Volga region shales, are analyzed. The industrial process of extracting bitumen from petroleum shales is described. The shale asphalt was found to possess high adhesive properties and as such is highly recommended for road building, manufacture of roofing materials, additives for paint and rubber products.

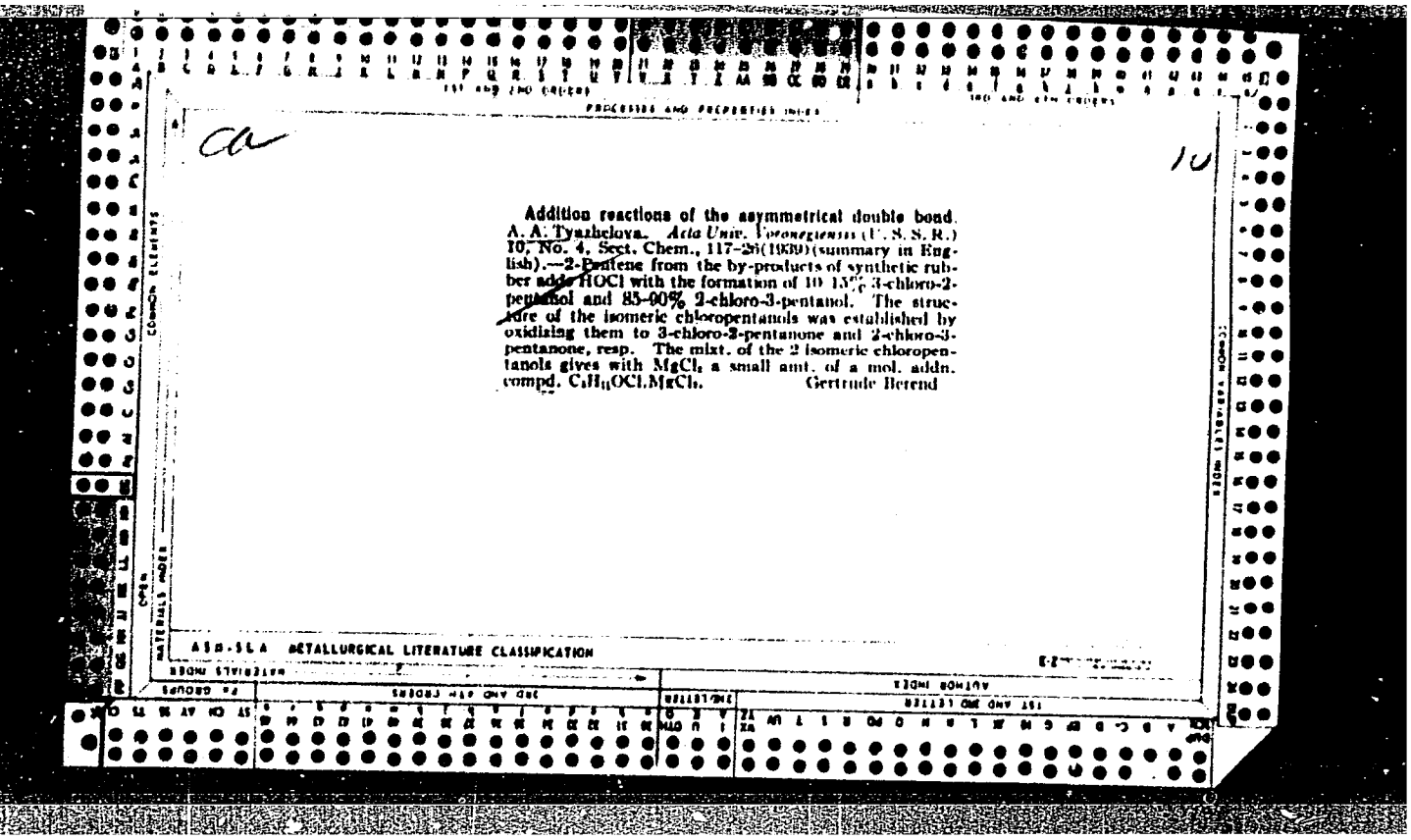
Institution : ...

Submitted : ...

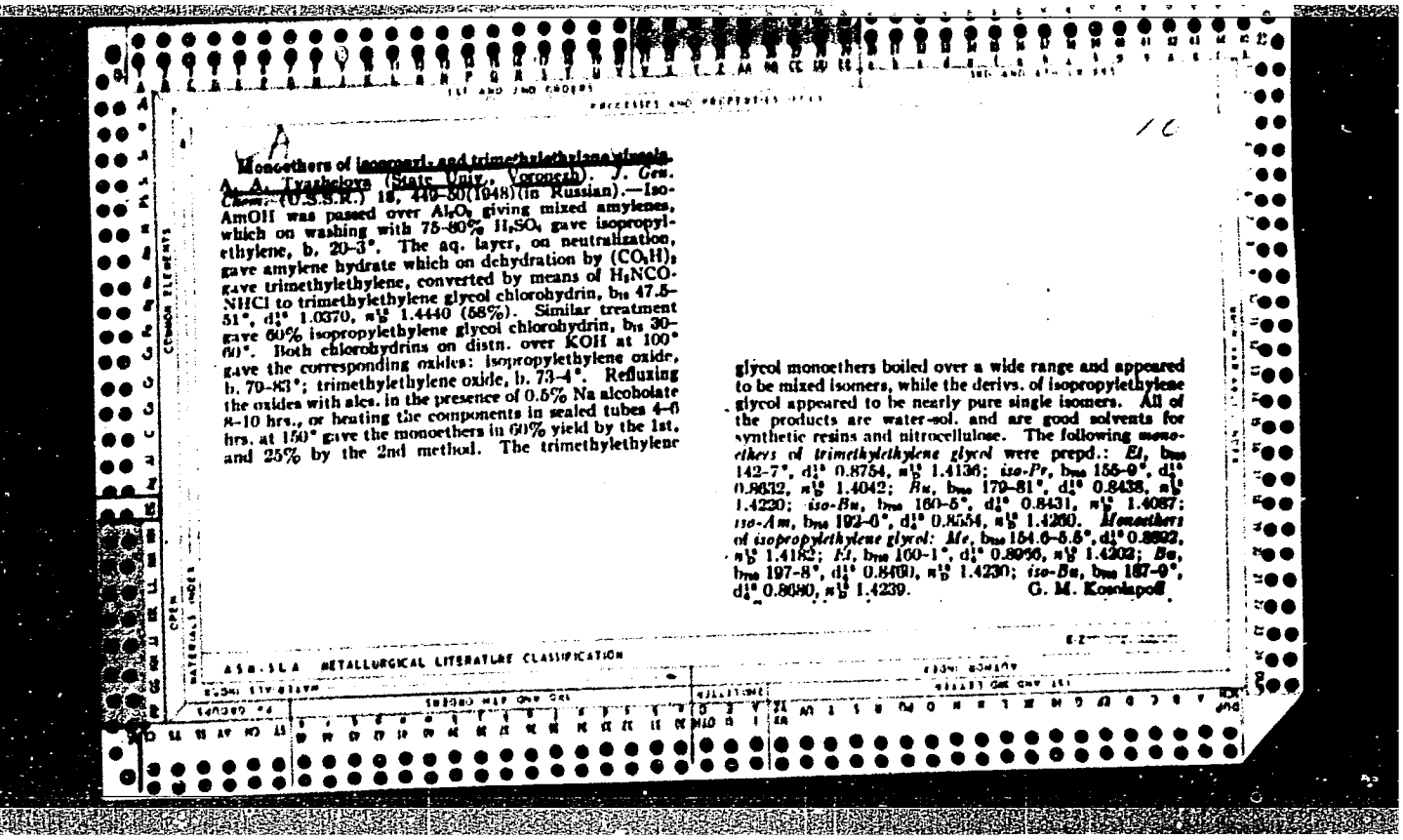
TYAZHELOVA, A. A.

"Monoesters of Isopropyl and Trimethyl Ethylene Glycol." (p. 449)
(Lab of Org Chem, Voronezh State U)

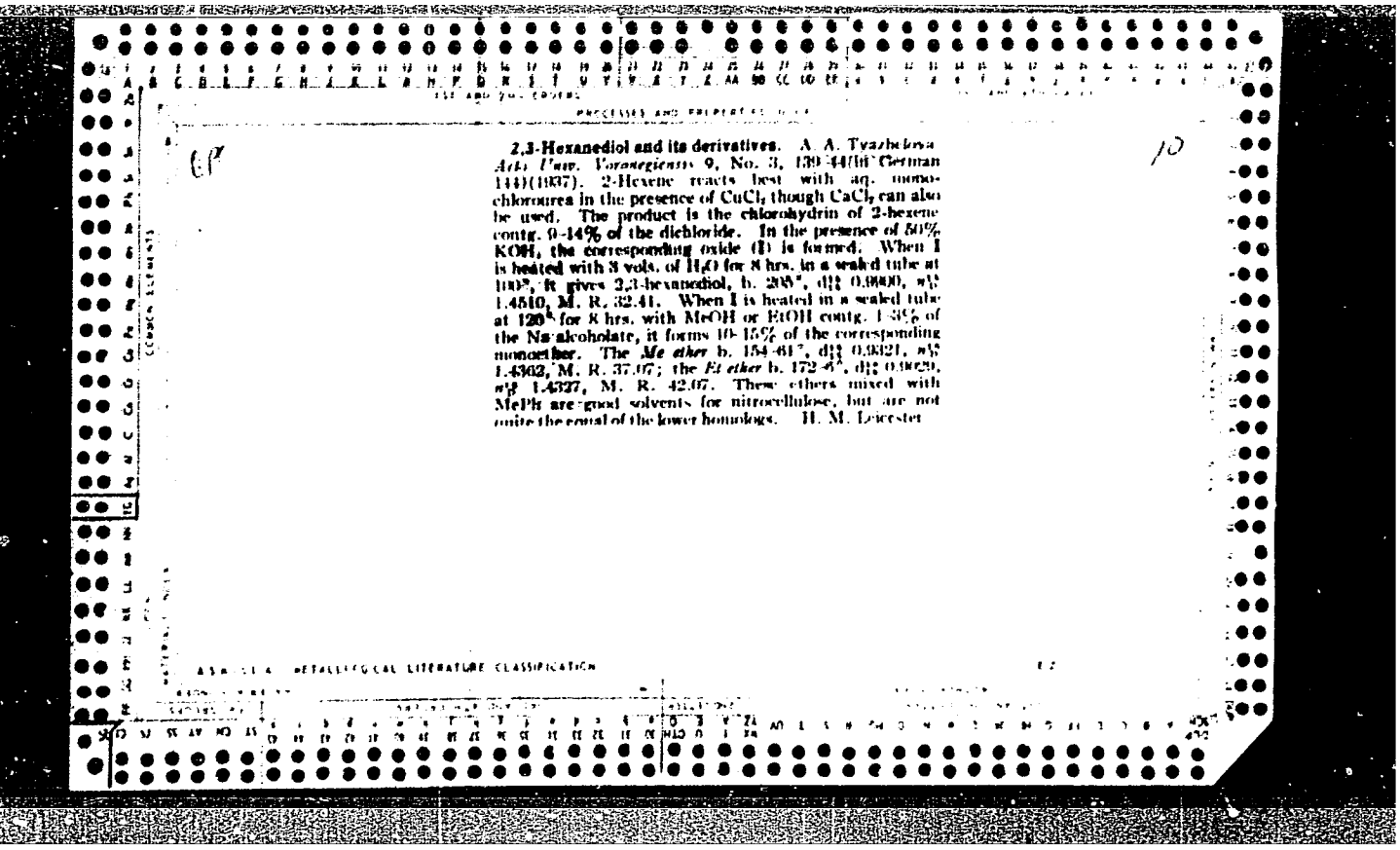
SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1948, Volume 18, (80), No. 3



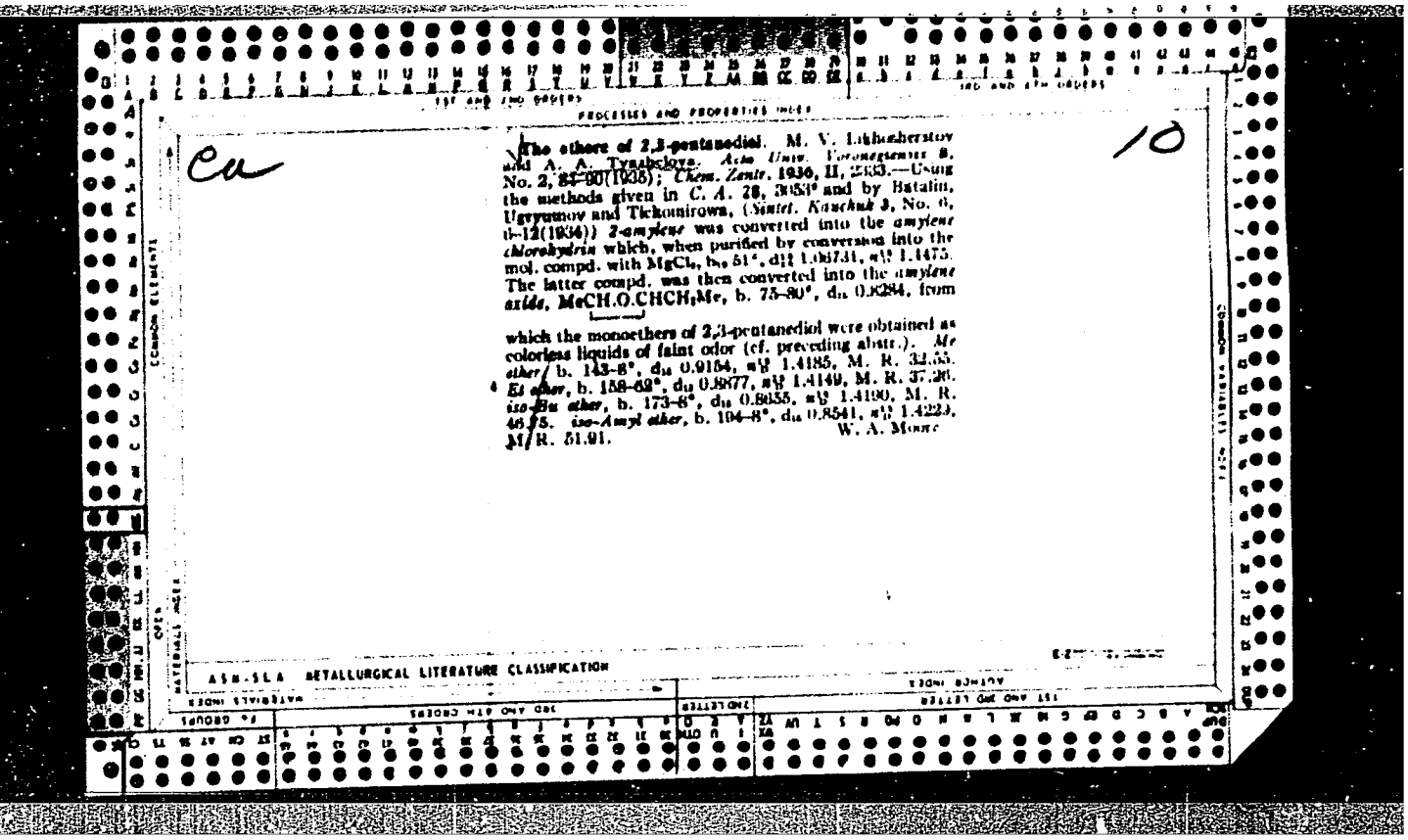
Addition reactions of the asymmetrical double bond. A. A. Tyazhelova. *Acta Univ. Voronegiensis* (U. S. S. R.) 10, No. 4, Sect. Chem., 117–26(1939)(summary in English).—2-Pentene from the by-products of synthetic rubber adds HOCl with the formation of 10–15% 3-chloro-2-pentanol and 85–90% 2-chloro-3-pentanol. The structure of the isomeric chloropentanols was established by oxidizing them to 3-chloro-2-pentanone and 2-chloro-3-pentanone, resp. The mixt. of the 2 isomeric chloropentanols gives with $MgCl_2$ a small amt. of a mol. addn. compd. $C_5H_{11}OCl.MgCl_2$. Gertrude Berend



Monoethers of isopropyl- and trimethylethylene glycols. A. A. Tyushkova (State Univ., Voronezh). *J. Gen. Chem.* (U.S.S.R.) 18, 449–50(1948)(in Russian).—Iso-AmOH was passed over Al_2O_3 giving mixed amylenes, which on washing with 75–80% H_2SO_4 gave isopropylethylene, b. 20–3°. The aq. layer, on neutralization, gave amylene hydrate which on dehydration by $(CO_2H)_2$ gave trimethylethylene, converted by means of $H_2NCONHCl$ to trimethylethylene glycol chlorohydrin, b_{15} 47.5–51°, d_4^{15} 1.0370, n_D^{15} 1.4440 (58%). Similar treatment gave 60% isopropylethylene glycol chlorohydrin, b_{15} 30–60°. Both chlorohydrins on distn. over KOH at 100° gave the corresponding oxides: isopropylethylene oxide, b. 79–81°; trimethylethylene oxide, b. 73–4°. Refluxing the oxides with alcs. in the presence of 0.5% Na alcoholate 8–10 hrs., or heating the components in sealed tubes 4–6 hrs. at 150° gave the monoethers in 60% yield by the 1st, and 25% by the 2nd method. The trimethylethylene glycol monoethers boiled over a wide range and appeared to be mixed isomers, while the derivs. of isopropylethylene glycol appeared to be nearly pure single isomers. All of the products are water-sol. and are good solvents for synthetic resins and nitrocellulose. The following *monoethers of trimethylethylene glycol* were prepd.: *Et*, b_{760} 142–7°, d_4^{15} 0.8754, n_D^{15} 1.4136; *iso-Pr*, b_{760} 155–9°, d_4^{15} 0.8632, n_D^{15} 1.4042; *Bu*, b_{760} 179–81°, d_4^{15} 0.8438, n_D^{15} 1.4230; *iso-Bu*, b_{760} 160–5°, d_4^{15} 0.8431, n_D^{15} 1.4087; *iso-Am*, b_{760} 192–6°, d_4^{15} 0.8554, n_D^{15} 1.4260. *Monoethers of isopropylethylene glycol: Me*, b_{760} 134.6–5.5°, d_4^{15} 0.8892, n_D^{15} 1.4182; *Et*, b_{760} 160–1°, d_4^{15} 0.8936, n_D^{15} 1.4202; *Bu*, b_{760} 197–8°, d_4^{15} 0.8409, n_D^{15} 1.4230; *iso-Bu*, b_{760} 187–9°, d_4^{15} 0.8080, n_D^{15} 1.4239. G. M. Kosolapoff



2,3-Hexanediol and its derivatives. A. A. Tvazheleva *Acta Univ. Voronegiensis* 9, No. 3, 139-44(in German 144)(1937). 2-Hexene reacts best with aq. monochlorourea in the presence of $CuCl_2$ though $CaCl_2$ can also be used. The product is the chlorohydrin of 2-hexene contg. 9-14% of the dichloride. In the presence of 50% KOH, the corresponding oxide (I) is formed. When I is heated with 3 vols. of H_2O for 8 hrs. in a sealed tube at 110°, it gives 2,3-hexanediol, b. 208°, d_4^{15} 0.9000, n_D^{15} 1.4510, M. R. 32.41. When I is heated in a sealed tube at 120° for 8 hrs. with MeOH or EtOH contg. 1.3% of the Na-alcoholate, it forms 10-15% of the corresponding monoether. The *Me ether* b. 154-61°, d_4^{15} 0.9321, n_D^{15} 1.4362, M. R. 37.07; the *Et ether* b. 172-6°, d_4^{15} 0.9029, n_D^{15} 1.4327, M. R. 42.07. These ethers mixed with MePh are good solvents for nitrocellulose, but are not quite the equal of the lower homologs. H. M. Leicester



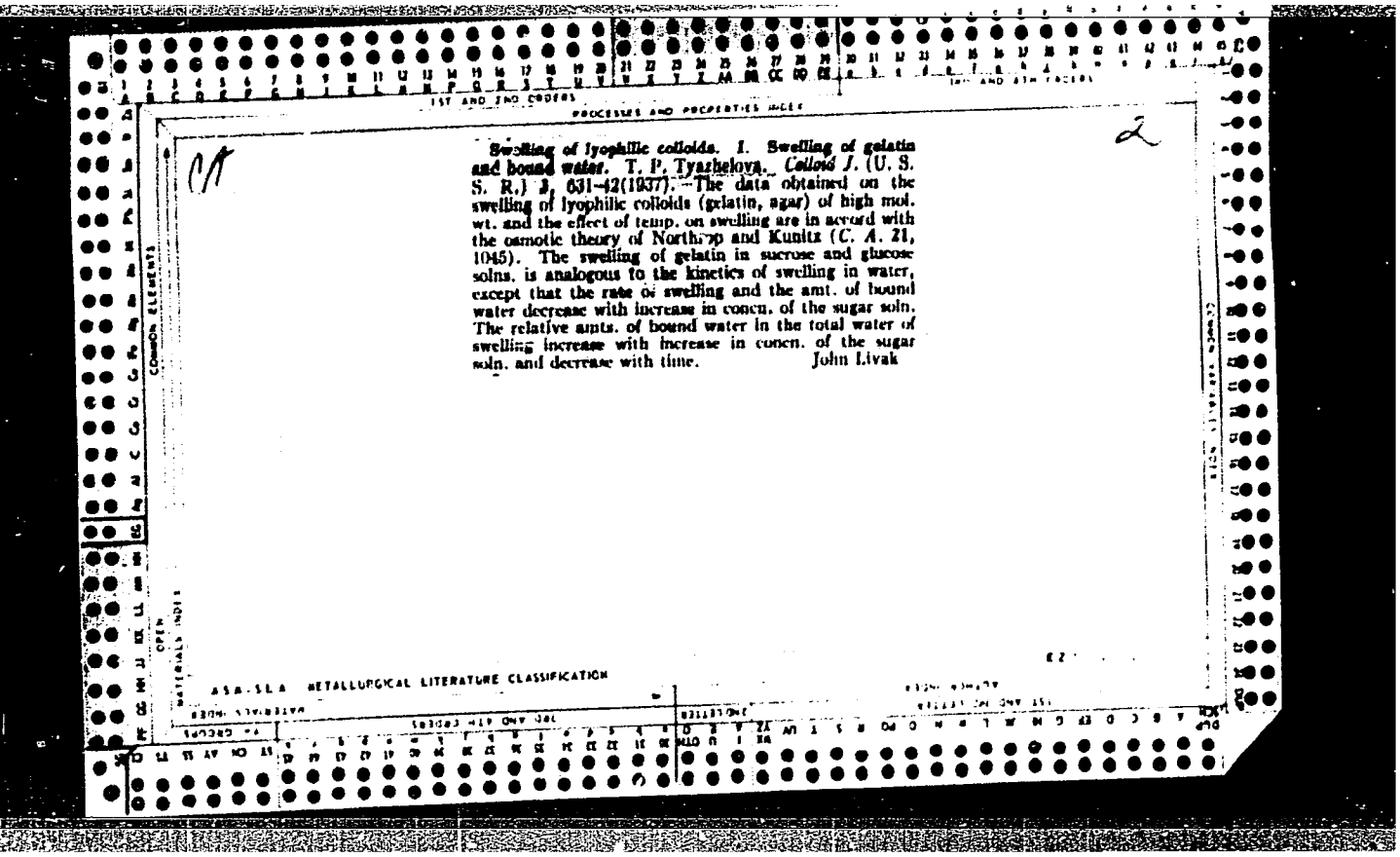
Cu

10

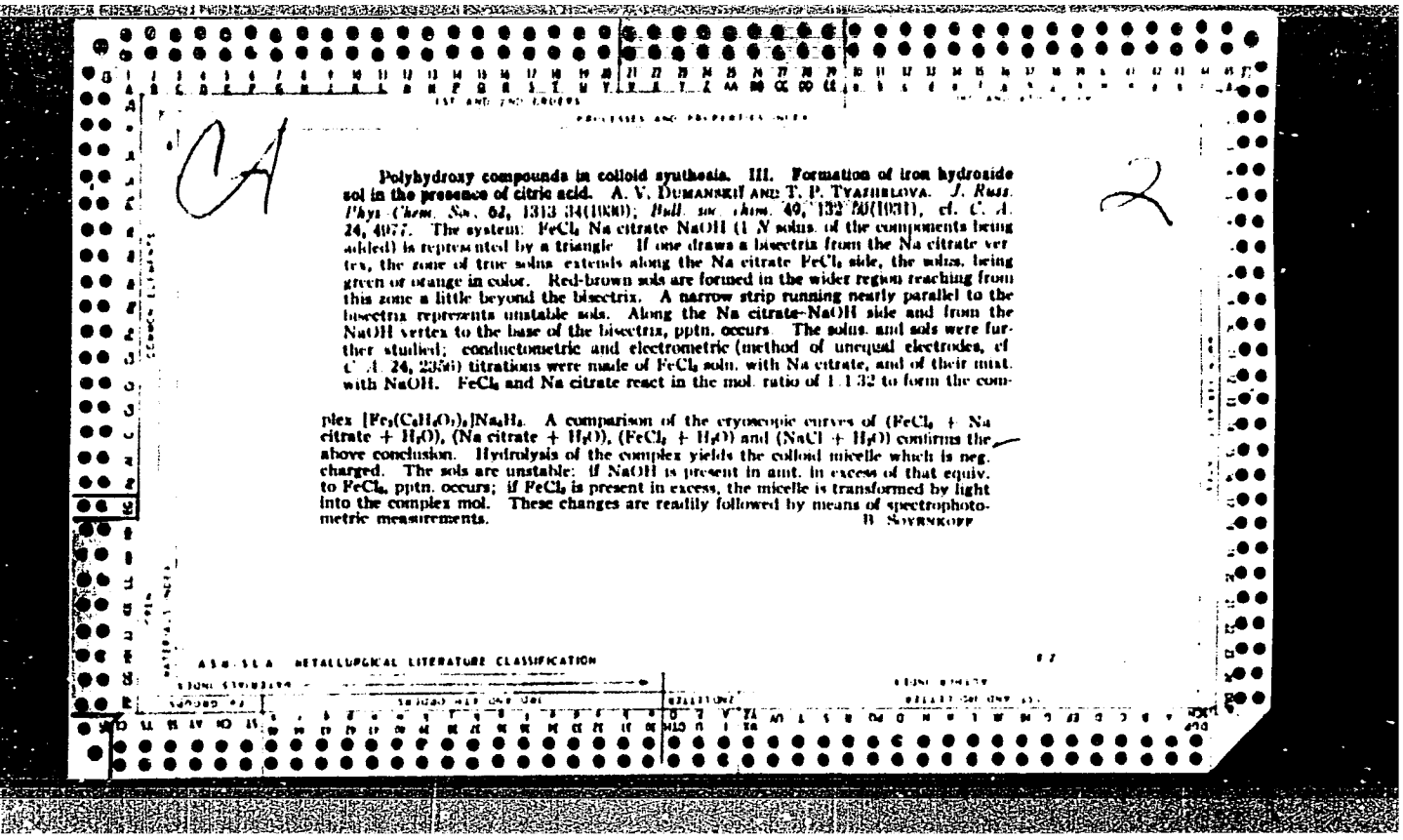
The ethers of 2,3-pentanediol. M. V. Likhushertov and A. A. Tyazhelova. *Acta Univ. Voronegiensis* 8, No. 2, 81–90(1935); *Chem. Zentr.* 1936, II, 2553.—Using the methods given in *C. A.* 28, 3851[9] and by Batalin, Ugryumov and Tichomirowa, (*Sintet. Kauchuk* 3, No. 6, 11–12(1934)) *2-amylene* was converted into the *amylene chlorohydrin* which, when purified by conversion into the mol. compd. with $MgCl_2$, b$_{50}$ 51°, d_4^{11} 1.0873, n_D^{11} 1.4475. The latter compd. was then converted into the *amylene oxide*, MeCH.O.CHCH$_2$Me, b. 75–80°, d_4 0.8284, from which the monoethers of 2,3-pentanediol were obtained as colorless liquids of faint odor (cf. preceding abstr.). *Me ether*, b. 143–8°, d_4 0.9184, n_D^{11} 1.4185, M. R. 32.55. *Et ether*, b. 158–62°, d_4 0.8877, n_D^{11} 1.4149, M. R. 37.26. *iso-Bu ether*, b. 173–6°, d_4 0.8655, n_D^{11} 1.4190, M. R. 46.75. *iso-Amyl ether*, b. 194–8°, d_4 0.8541, n_D^{11} 1.4223, M. R. 51.91.

W. A. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Swelling of lyophilic colloids. I. Swelling of gelatin and bound water. T. P. Tyazhelova. *Colloid J.* (U. S. S. R.) **3**, 631–42(1937).—The data obtained on the swelling of lyophilic colloids (gelatin, agar) of high mol. wt. and the effect of temp. on swelling are in accord with the osmotic theory of Northrop and Kunitz (*C. A.* **21**, 1045). The swelling of gelatin in sucrose and glucose solns. is analogous to the kinetics of swelling in water, except that the rate of swelling and the amt. of bound water decrease with increase in concn. of the sugar soln. The relative amts. of bound water in the total water of swelling increase with increase in concn. of the sugar soln. and decrease with time. John Livak



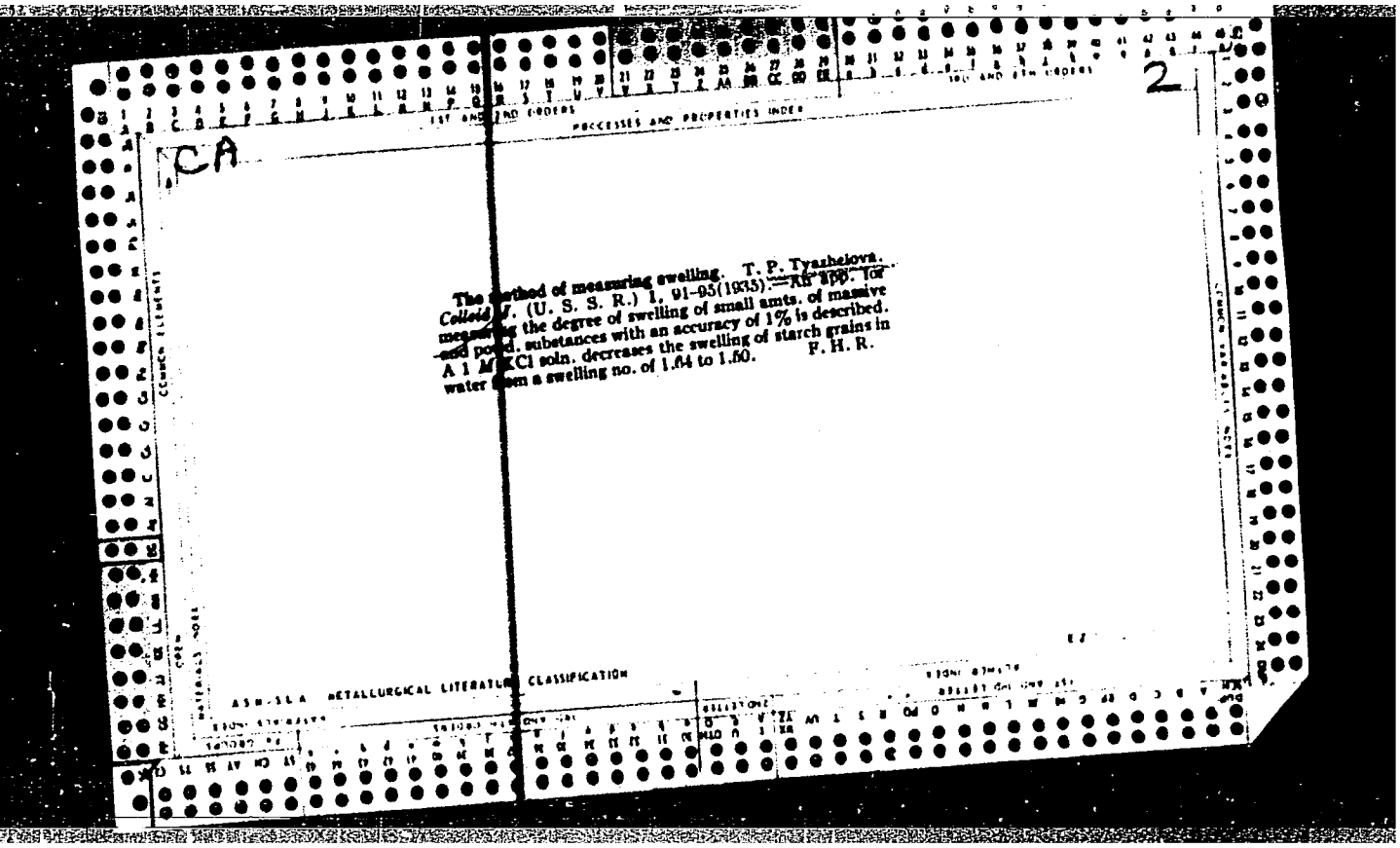
CA

2

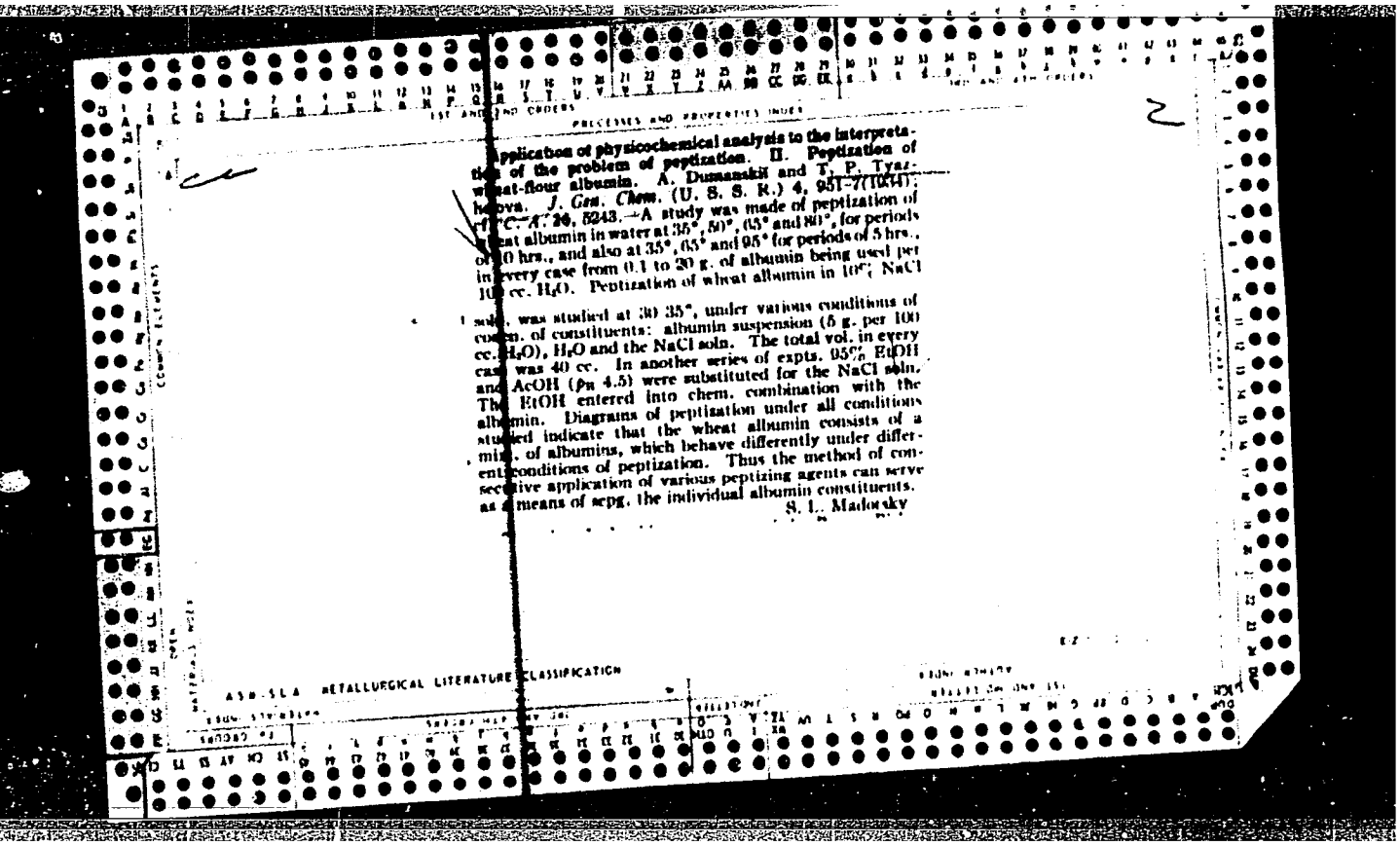
Polyhydroxy compounds in colloid synthesis. III. Formation of iron hydroxide sol in the presence of citric acid. A. V. Dumanskii and T. P. Tyazhelova. *J. Russ. Phys. Chem. Soc.*, **62**, 1313-34(1930); *Bull. soc. chim.* **49**, 132-40(1931). cf. *C. A.* **24**, 4077. The system: $FeCl_3$-Na citrate-NaOH (1 *N* solns. of the components being added) is represented by a triangle. If one draws a bisectrix from the Na citrate vertex, the zone of true solns. extends along the Na citrate-$FeCl_3$ side, the solns. being green or orange in color. Red-brown sols are formed in the wider region reaching from this zone a little beyond the bisectrix. A narrow strip running nearly parallel to the bisectrix represents unstable sols. Along the Na citrate-NaOH side and from the NaOH vertex to the base of the bisectrix, pptn. occurs. The solns. and sols were further studied; conductometric and electrometric (method of unequal electrodes, cf. *C. A.* **24**, 2351) titrations were made of $FeCl_3$ soln. with Na citrate, and of their mixt. with NaOH. $FeCl_3$ and Na citrate react in the mol. ratio of 1:1.32 to form the complex $[Fe_2(C_6H_4O_7)_3]Na_4H_2$. A comparison of the cryoscopic curves of ($FeCl_3$ + Na citrate + H_2O), (Na citrate + H_2O), ($FeCl_3$ + H_2O) and (NaCl + H_2O) confirms the above conclusion. Hydrolysis of the complex yields the colloid micelle which is neg. charged. The sols are unstable: if NaOH is present in amt. in excess of that equiv. to $FeCl_3$, pptn. occurs; if $FeCl_3$ is present in excess, the micelle is transformed by light into the complex mol. These changes are readily followed by means of spectrophotometric measurements.

B. Sovrikoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

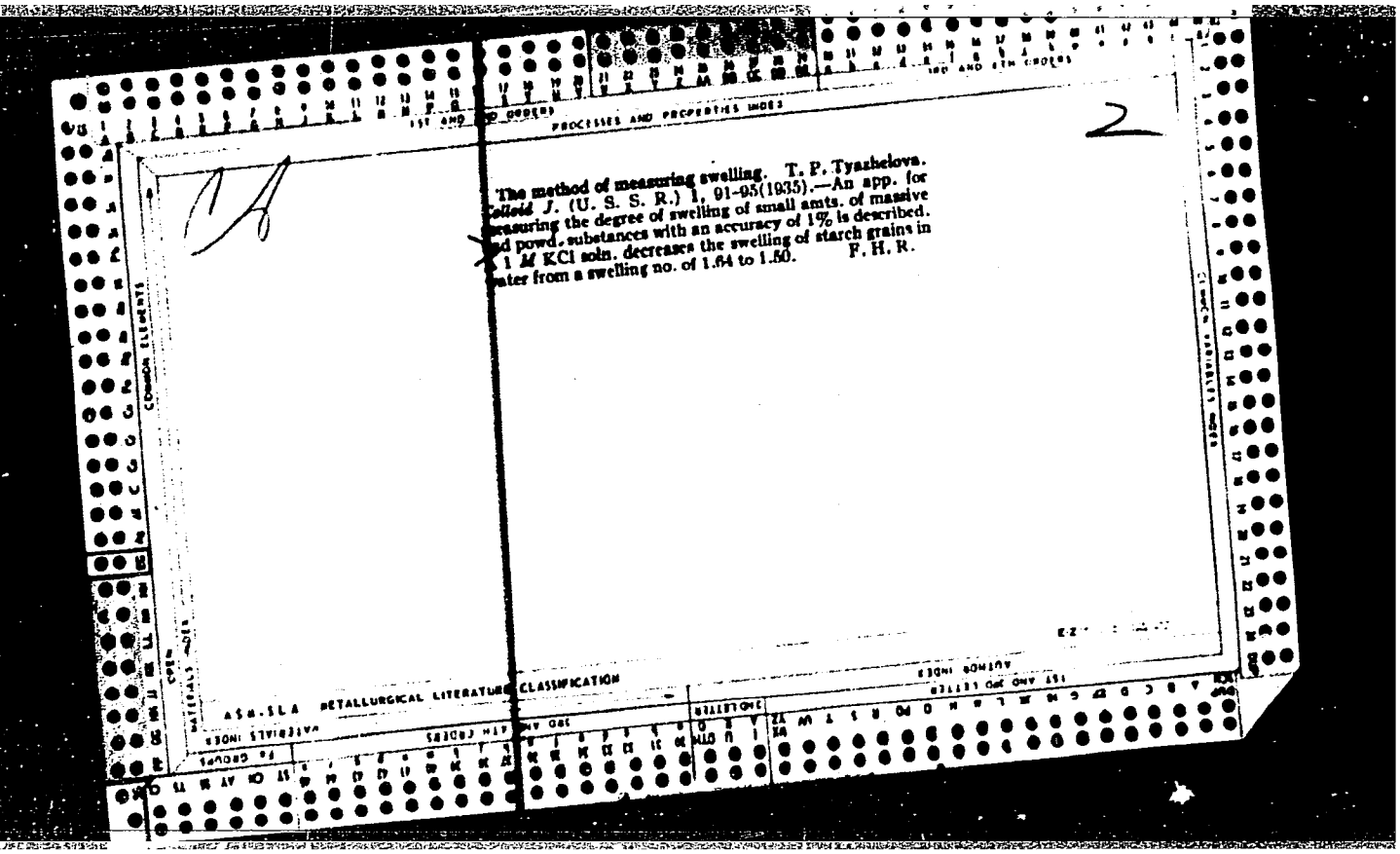


The method of measuring swelling. T. P. Tyazhelova. *Colloid J.* (U. S. S. R.) 1, 91–95(1935).—An app. for measuring the degree of swelling of small amts. of massive and powd. substances with an accuracy of 1% is described. A 1 *M* KCl soln. decreases the swelling of starch grains in water from a swelling no. of 1.64 to 1.50. F. H. R.



Application of physicochemical analysis to the interpretation of the problem of peptization. II. Peptization of wheat-flour albumin. A. Dumanskii and T. P. Tyazhelova. *J. Gen. Chem.* (U. S. S. R.) 4, 951–7(1934); cf. *C. A.* 28, 8243.—A study was made of peptization of wheat albumin in water at 35°, 50°, 65° and 80°, for periods of 10 hrs., and also at 35°, 65° and 95° for periods of 5 hrs., in every case from 0.1 to 30 g. of albumin being used per 100 cc. H_2O. Peptization of wheat albumin in 10% NaCl soln., was studied at 30, 35°, under various conditions of concn. of constituents: albumin suspension (5 g. per 100 cc. H_2O), H_2O and the NaCl soln. The total vol. in every case was 40 cc. In another series of expts. 95% EtOH and AcOH (*p*H 4.5) were substituted for the NaCl soln. The EtOH entered into chem. combination with the albumin. Diagrams of peptization under all conditions studied indicate that the wheat albumin consists of a mixt. of albumins, which behave differently under different conditions of peptization. Thus the method of consecutive application of various peptizing agents can serve as a means of sepg. the individual albumin constituents.

S. L. Madorsky



PROCESSES AND PROPERTIES INDEX

2

The method of measuring swelling. T. P. Tyazhelova. *Kolloid J.* (U. S. S. R.) 1, 91-95(1935).—An app. for measuring the degree of swelling of small amts. of massive and powd. substances with an accuracy of 1% is described. 1 *M* KCl soln. decreases the swelling of starch grains in water from a swelling no. of 1.64 to 1.50. F. H. R.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

M

Country : USSR
Category : CULTIVATED PLANTS. FRUITS. Berries .

Abs. Jour. : REF ZHUR-BIOL.,21,1958,NO-96129

Author : Tyazhel'nikov, A.D.
Institut. : Siberian Botanical Garden (Tomsk Univ.)
Title : New Promising Apple Varieties

Orig. Pub. : Byul. Sibirsk. botan. sada (Tomskiy un-t), 1958, vyp.5, 19-22

Abstract : Five new apple varieties are described which were developed by directed breeding under varying geologico-geographic conditions. The weight of the fruit of these winter hardy hybrids reaches 65 grams.

Card: 1/1

TYAZHEL'NIKOV, A.D.

New promising apple varieties. Biul.Sib.bot.sada no.5:19-22 '58.
(MIRA 12:11)

1. Sibirskiy botanicheskiy sad pri Tomskom gosuniversitete im. V.V. Kuybysheva.
(Siberia--Apple--Varieties)

TYAZHEL'NIKOV, A.D.

Use of the mentor method. Biul.Sib.bot.sada no.5:73-74 '58.
(MIRA 12:11)

1. Sibirskiy botanicheskiy sad pri Tomskom gosuniversitete im. V.V. Kuybysheva.
(Fruit culture)

TYAZHEL'NIKOV, A.D.

In Siberia and Central Asia. Nauka i pered. op. v sel'khoz. 7 no.2:35-38 F '57. (MLRA 10:3)
(Siberia--Apple breeding) (Soviet Central Asia--Apple breeding)

1. TYAGHEL'NIKOV, A. D.

2. USSR (600)

4. Tomsk Province - Fruit Culture

7. Ways for developing fruit culture in Tomsk Province. Trudy Tomsk. un^1951.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

1. TYAZHEL'NIKOV, A. D.
2. USSR (600)
4. Fruit Culture - Tomsk Province
7. Ways for developing fruit culture in Tomsk Province. Trudy Tomdk un. 114, 1951

Monthly List of Russian Accessions, Library of Congress, March, 1953, Unclassfied.

TYAZHEL'NIKOV, S.D.

BARSUKOV, N.I., kand.sel'skokhozyaystvennykh nauk; KIZYURIN, A.D., doktor sel'skokhozyaystvennykh nauk; BORINEVICH, V.A., kand.sel'skokhozyaystvennykh nauk; BORMUSOVA, S.M., agronom; VERMENICHEVA, M.D., kand. sel'skokhozyaystvennykh nauk; GESHELE, E.E., doktor biol. nauk; GOROKHOV, G.I., kand.sel'skokhozyaystvennykh nauk; GUBKIN, S.M., kand. veterinarnykh nauk; YELYKOVA, L.I., kand.sel'skokhozyaystvennykh nauk; KOTT, S.V., doktor biol. nauk; KOCHKINA, V.A., agronom; LAMBIN, A.Z., doktor biol.nauk; LEBEDEVA, Ye.M., agronom; MALAKHOVSKIY, A.Ya., doktor sel'skokhozyaystvennykh nauk; MAYBORODA, N.M., kand. sel'skokhozyaystvennykh nauk; MAYDANYUK, A.E., zootekhnik; OVSYANNIKOV, G.Ye., kand.sel'skokhozyaystvennykh nauk; PETROV, F.A., kand.biol.nauk; POGORELOV, P.F., agronom; POLKOSHNIKOV, M.G., dotsent; RENARD, G.K., kand. sel'skokhozyaystvennykh nauk; RUCHKIN, V.N., prof.; SADYRIN, M.M., kand.sel'skokhozyaystvennykh nauk; TOBOL'SKIY, V.YA., vetvrach; TYAZHEL'NIKOV, S.D., kand.sel'skokhozyaystvennykh nauk; UKHIN, I.I., kand.sel'skokhozyaystvennykh nauk; FEDOROV, G.V., kand.sel'skokhozyaystvennykh nauk; CHIRKOV, D.I., zootekhnik; TSINGOVATOV, V.A., prof.; SHVETSOVA, A.N., kand.sel'skokhozyaystvennykh nauk; SHEVLYAGIN, A.I., kand.sel'skokhozyaystvennykh nauk; SEMENOVSKIY, A.A., red.; GOLUBINSKAYA, Ye.S., red.; MECHAYEVA, Ye.G., red.; PERESYPKINA, Z.D., tekhnicheskiy red.

[Siberian agronomist's reference manual] Spravochnaia kniga agronoma Sibiri. Moskva, Gos. izd-vo sel'khoz. lit-ry, Vol.2. 1957. 839 p. (MIRA 11:3)
(Siberia--Agriculture)

TYAZHEL'NIKOV, S. B.

"Agroclimatic Prerequisites for the Regional Distribution of Cucumbers by Species in the Natural Zones of Western Siberia." Cand Agr Sci, Moscow Agricultural Acad imeni K. A. Timiryazev, Moscow, 1954. (RZhBiol, No 8, Apr 55)

SO: Sum. No. 704, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (16).